High Wall

EVHC 09 to 12 DSAAAR

SERVICE MANUAL

EVHC-09 / EVHC-12

YORK®
BY JOHNSON CONTROLS

SM-EVHC-D-09-12GB 05-10

CONTENTS

Safety Cautions

To prevent injury to the user or other people and property damage, the following instructions must be followed.

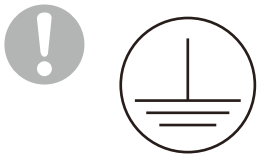
■ Incorrect operation due to ignoring instruction will cause harm or damage. The seriousness is classified by the following indications.

⚠**WARNING**	This symbol indicates the possibility of death or serious injury.
⚠**CAUTION**	This symbol indicates the possibility of injury or damage to properties only.

■ Meanings of symbols used in this manual are as shown below.

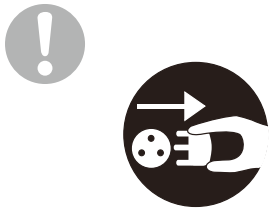
	Be sure not to do.
	Be sure to follow the instruction.

⚠ ★ Earth: The ground be connected!



If not, please ask the qualified personnel to install. Furthermore, don't connect each wire to the gas pipe, water pipe, drainage pipe, drainage pipe or any other improper places.

★Be sure to pull out the power plug when not using the air conditioner for a long time.

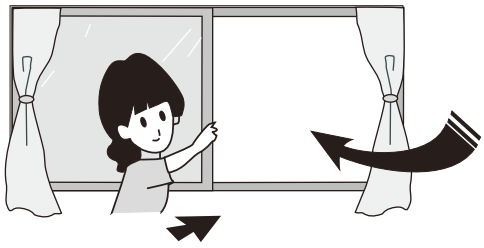


Otherwise, the accumulated dust may cause fire or electric shock.

★ Select the most appropriate temperature.

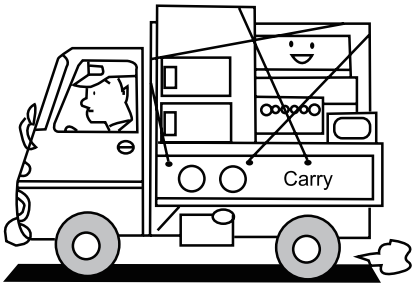
It can preclude the electricity wasted.

★ Don't leave windows and doors open for a long time while operating the air conditioner.



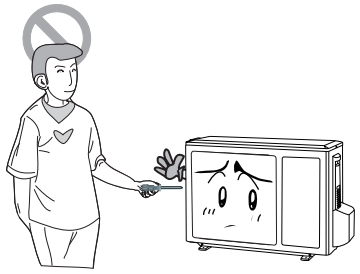
It can decrease the air conditioning capacity.

★ For re-installation of the installed product, always contact a dealer or an authorized service center.



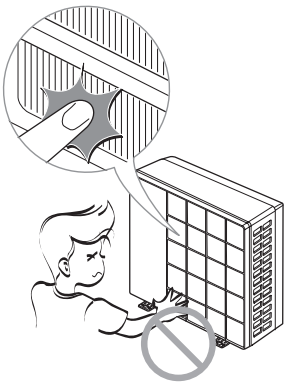
There is risk of fire, electric shock, explosion, or injury.

★ Do not install, remove, or re-install the unit by yourself.



There is risk of fire, electric shock, explosion, or injury.

★ Be cautious when unpacking and installing the product.



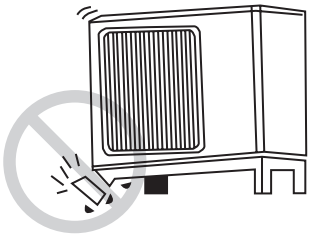
Sharp edges could cause injury. Be especially careful of the case edges and the fins on the condenser and evaporator.

★ For installation, always contact the dealer or an Authorized service center.

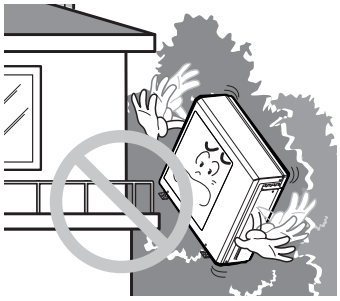
There is risk of fire, electric shock, explosion, or injury.

★ Do not install the product on a defective installation stand.

• It may cause injury, accident, or damage to the product.

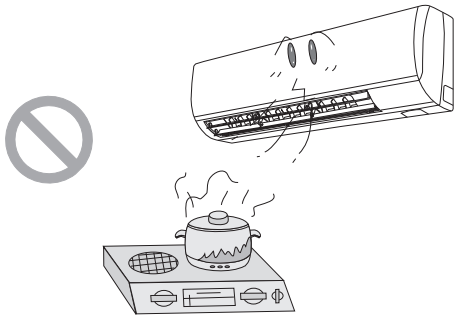


★ Be sure the installation area does not deteriorate with age.



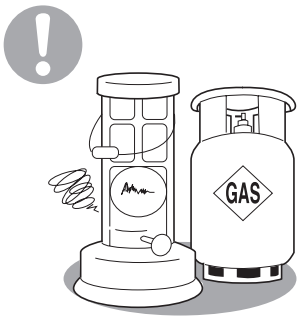
• If the base collapses, the air conditioner could fall with it, causing property damage, product failure, and personal injury.

★ Don't place a space heater near the air conditioner.



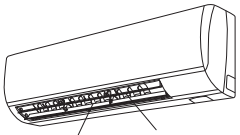
Or CO toxicosis may occur for imcomplete burning.

★ Keep combustible spray away from the units more than 1m.



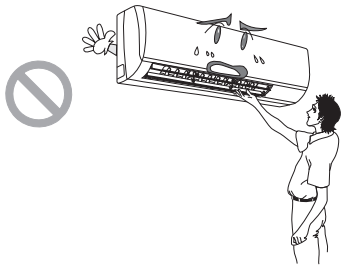
It can cause afire or explosion.

★ The airflow direction can be adjusted appropriately.At operating, adjust the vertical airflow direction by adjusting the louvers of upward/downward direction. And then, hold two ends of left and right louver to adjust the horizontal airflow.



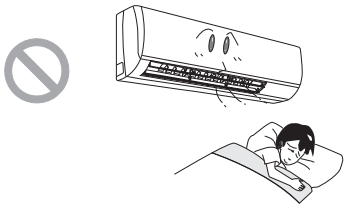
Louver of left/right direction Louver of upward/ downward direction.

★ Don't insert your hands or stick into the air intake or outlet vents.



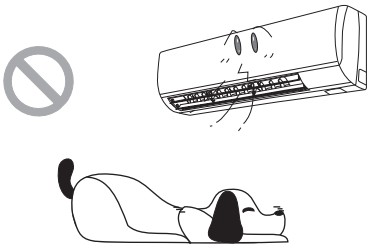
Otherwise it will cause accident.

★ Don't apply the cold wind to the body for a long time.



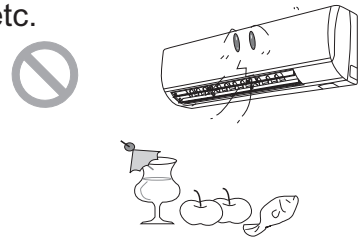
It can cause the health problems.

★ Don't blow the wind to animals and plants directly. It can cause a bad influence to them.



★ Splashing water on the air conditioner can cause an electric shock and malfunction.

★ Don't use the air conditioner for other purposes, such as drying clothes, preserving foods, etc.



Operation of wireless remote control

Note: Be sure that there are no obstructions between receiver and remote controller; Don't drop or throw the remote control; Don't let any liquid in the remote control and put the remote control directly under the sunlight or any place where is very hot.

Signal transmitter

Remote control

SLEEP

SLEEP button

- Press this button, Sleep On and Sleep Off can be selected. After powered on,Sleep Off is defaulted. After the unit is turned off, the Sleep function is canceled. After Sleep function set up, the signal of Sleep will display. In this mode, the time of timer can be adjusted. Under Fan and Auto modes, this function is not available.

FAN

FAN only button

- Press this button, Auto, Low, Middle, High speed can be circularly selected. After powered on,Auto fan speed is default. Under Dehumidify mode, Low fan speed only can be set up.

AUTO → Low fan → Middle fan → High fan

Note:Under the Dry mode, the fan speed isn't adjustable, low fan speed is imperative, but when operating this button, the wireless adjustable, low fan speed is imperative,

Note: There is no fan display shown on the front panel of the indoor unit

ON/OFF

ON/OFF button

- Press this button, the unit will be turned on, press it once more, the unit will be turned off. When turning on or turning off the unit, the Timer, Sleep function will be canceled, but the presetting time is still remained.

MODE

MODE button

- Press this button, Auto, Cool,Dry, Fan, Heat mode can be selected circularly. Auto mode is default while power on. Under Auto mode,the temperature will not be displayed; Under Heat mode, the initial value is 28℃(82℉);Under other modes, the initial value is 25℃(77℉).

AUTO
COOL
DRY
FAN
HEAT
(only for cooling and heating unit)

CLOCK

CLOCK button

- Press this button, the clock can be set up, signal ◴ blink and display.Within 5 seconds, the value can be adjusted by pressing + or - button, if continuously press this button for 2 seconds above, in every 0.5 seconds, the value on ten place of Minute will be increased 1. During blinking, repress the Clock button, signal ◴ will be constantly displayed and it denotes the setting succeeded. After powered on, 12:00 is defaulted to display and signal ◴ will be displayed. If there is signal be displayed that denotes the current time value is Clock value, otherwise is Timer value.

Remote control

BLOW

BLOW button

● This function only operates when unit is in DRY or Cooling mode and should be on when used in high humidity indoor environment to dry indoor coil to prevent mould growing on the coil.
To set this function press Below button, an Icon will be displayed on LCD remote controller. When this function is on and unit is turned off at the remote controller the indoor fan will continue to operate for period of time then will turn off. If you press the Below button whilst the unit is turned off and fan is running

TURBO

TURBO button

● In Cool or Heat mode, press this button can turn on or turn off the Turbo function. After turned on the Turbo function, its signal will be displayed. When switching the mode or changing fan speed, this function will be canceled automatically.

\+

+ button

● For presetting temperature increasing. Press this button,can set up the temperature, when unit is on . Continuously press and hold this button for more than 2 seconds, the corresponding contents will be changed rapidly, until unpress the button then send the information, ℃ (℉) is displaying all along. In Auto mode, the temperature can not be set up, but operate this button can send the signal. Centigrade setting range :16-30; Fahrenheit scale setting range 61-86.

\-

- button

● Presetting temperature can be decreased. Press this button, the temperature can be set up, continuously press this button and hold for two seconds, the relative contents can quickly change, until unhold this button.

The temperature adjustment is unavailable under the Auto mode, but the order can be sent by if pressing this button.

TEMP

TEMP button

● After powered on, the setting temperature displaying is defaulted, (according to customers requirements to display, if there is no requirement that will default to display the presetting temperature and there is no icon displayed on wireless remote control). Press this button, (When displaying) , will display presetting temperature; (when displaying) will display indoor ambient temperature, current displaying status will not be changed. If current displays indoor ambient temperature, if received the other remote control signal, it will display presetting temperature, 5s later, will back to display the ambient temperature.

Remote control

SWING UP AND DOWN BUTTON

- Press this button, to set up swing angle, which circularly changes as below:

OFF

This is an universal use remote controller. If remote controller sends the following three kinds of status that the swing status of main unit will be:

When the guide louver start to swing up and down, if turn off the Swing, the air guide louver will stop at current position.

which indicates the guide louver swings up and down between that all five positions.

TIMER ON

TIMER ON BUTTON

- Timer On setting: Signal ON will blink and display, signal ◴ will conceal, the numerical section will become the timer on setting status. During 5 seconds blink, by pressing + or − button to adjust the time value of numerical section, every press of that button, the value will be increased or decreased 1 minute. Hold pressing + or − button, 2 seconds later, it quickly change, the way of change is: During the initial 2.5 seconds, ten numbers change in the one place of minute, then the one place is constant, ten numbers change in the tens place of minute at 2.5 seconds speed and carry. During 5s blink, press the Timer button, the timer setting succeeds. The Timer On has been set up, repress the timer On button, the Timer On will be canceled. Before setting the Timer, please adjust the Clock to the current actual time.

TIMER OFF

TIMER OFF BUTTON

- Once press this key to enter into TIMER OFF setup, in which case the TIMER OFF icon will blink. The method of setting is the same as for TIMER ON.

LIGHT

LIGHT button

- To turn the display panel (indoor unit) on or off press the light button on the remote controller. If the light function is on a which is be displayed on the LCD panel of the remote controller

LOCK

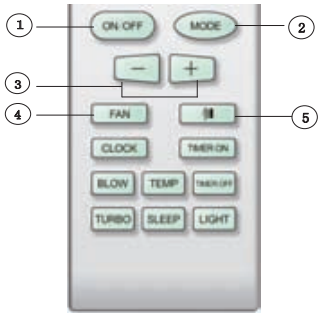
LOCK BUTTON

- When pressing - and + together the remote controller will be locked. to release lock function press - and + together again.

℃ To ℉

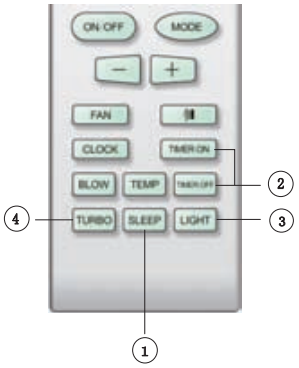
- When unit is off, press MODE and - button simultaneously to switch between ℃ and ℉.

Guide for operation- General operation



1. After powered on, press ON/OFF button, the unit will start to run.(Note: When it is powered off, the guide louver of main unit will close automatically.)
2. Press MODE button, select desired running mode, or press COOL or HEAT mode to enter into the corresponding operation directly.
3. Pressing +or - button, to set the desired temperature. (It is unnecessary to set the temp. at AUTO mode.)
4. Pressing FAN button, set fan speed, can select AUTO FAN, LOW, MID and HIGH.
5. Pressing button, to select the swing.

Guide for operation- Optional operation



1. Press SLEEP button, to set sleep.
2. Press TIMER ON and TIMER OFF button, can set the scheduled timer on or timer off.
3. Press LIGHT button, to control the on and off of the displaying part of the unit (This function may be not available for some units).
4. Press TURBO button, can realize the ON and OFF of TURBO function.

Introduction for special function

★ About AUTO RUN

When AUTO RUN mode is selected, the setting temperature will not be displayed on the LCD, the unit will be in accordance with the room temp. automatically to select the suitable running method and to make ambient comfortable.

★ About turbo function

If start this function, the unit will run at super-high fan speed to cool or heat quickly so that the ambient temp. approachs the preset temp. as soon as possible.

★ About swing up and down

1. Press swing up and down button continuously more than 2s,the main unit will swing back and forth from up to down, and then loosen the button, the unit will stop swinging and present position of guide louver will be kept immediately.
2. Under swing up and down mode, when the status is switched from off to , if press this button again 2s later, status will switch to off status directly; if press this button again within 2s,the change of swing status will also depend on the circulation sequence stated above.

★ About new function of defrosting

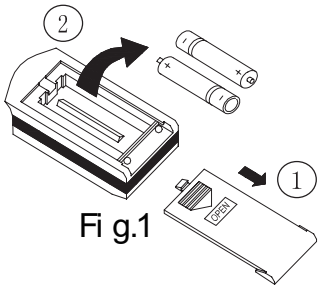
It indicates: after starting this function by remote controller and the unit has been under defrost status, If turn off the unit by remote controller, the unit will not stop defrosting until it is finished; if change setting mode by remote controller, the function ,which is set last time, won't be carried out until defrosting finished.

Operation of this function on or off: If remote controller is under off status, press mode button and blow button simultaneously in order to enter or cancel this new function. If the unit is under defrost mode, dual eight position on remote controller will display H1.If switch to heat mode, the position will display H1, which flickers for 5s, in which case, press +/- button, H1 will disappear and setting temp. be displayed.

After remote controller is powered on, the new defrost function will be defaulted to be closed.

Changing batteries and notices

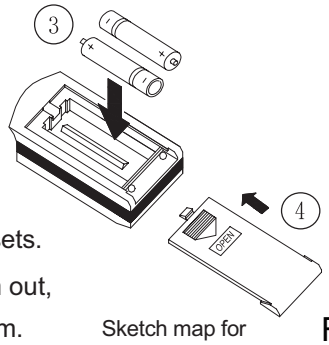
1. Slightly to press the place with OPEN , along the arrowhead direction to push the back cover of wireless remote control. (As show in figure)
2. Take out the old batteries. (As show in figure)
3. Insert two new AAA1.5V dry batteries, and pay attention to the polarity. (As show in figure)
4. Attach the back cover of wireless remote control. (As show in figure)



Fi g.1

★ NOTE:

- When changing the batteries, do not use the old or different batteries, otherwise, it can cause the malfunction of the wireless remote control.
- If the wireless remote control will not be used for a long time, please take them out, and don't let the leakage liquid damage the wireless remote control.
- The operation should be in its receiving range.
- It should be placed at where is 1m away from the TV set or stereo sound sets.
- If the wireless remote control can not operate normally, please take them out, after 30s later and reinsert, if they cannot normally run, please change them.



Sketch map for changing batteries

Fig.2

Displayer indicator light control of indoor unit

It's a special selective buttonfor the users ,who are not accustomed to the light at sleeping.

- Get the displayer indicator light on: When setting the light function,the mark will display on the remote controller screen by pressing this button. In which case,the diss-player indicator light will be on if the AC receives this signal.
- Get the displayer indicator light off: If cancel the light function,the mark will disap-per on the remote controller screen by pressing this button. In which case, the displayer indicator light will be off if the AC receives this signal.

Emergency operation

If the wireless remote control is lost or broken, please use the manual switch button. At this time, the unit will run at the Auto mode, but the temperature and fan speed cannot be changed. The operation was shown as below:

To open the panel, the manual switch is on the displayer box.

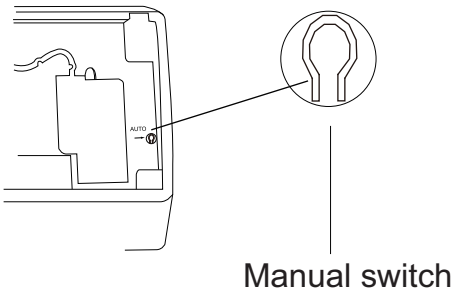


Fig.3

- Turn on the unit: At unit turned off, press the button,the unit will run at Auto mode immediately.The microcomputer will accord to the indoor temperature to select (Cooling, Heating, Fan) and obtain the comfortable effect.
- Turn off the unit: At unit turned on, press the button, the unit will stop working.

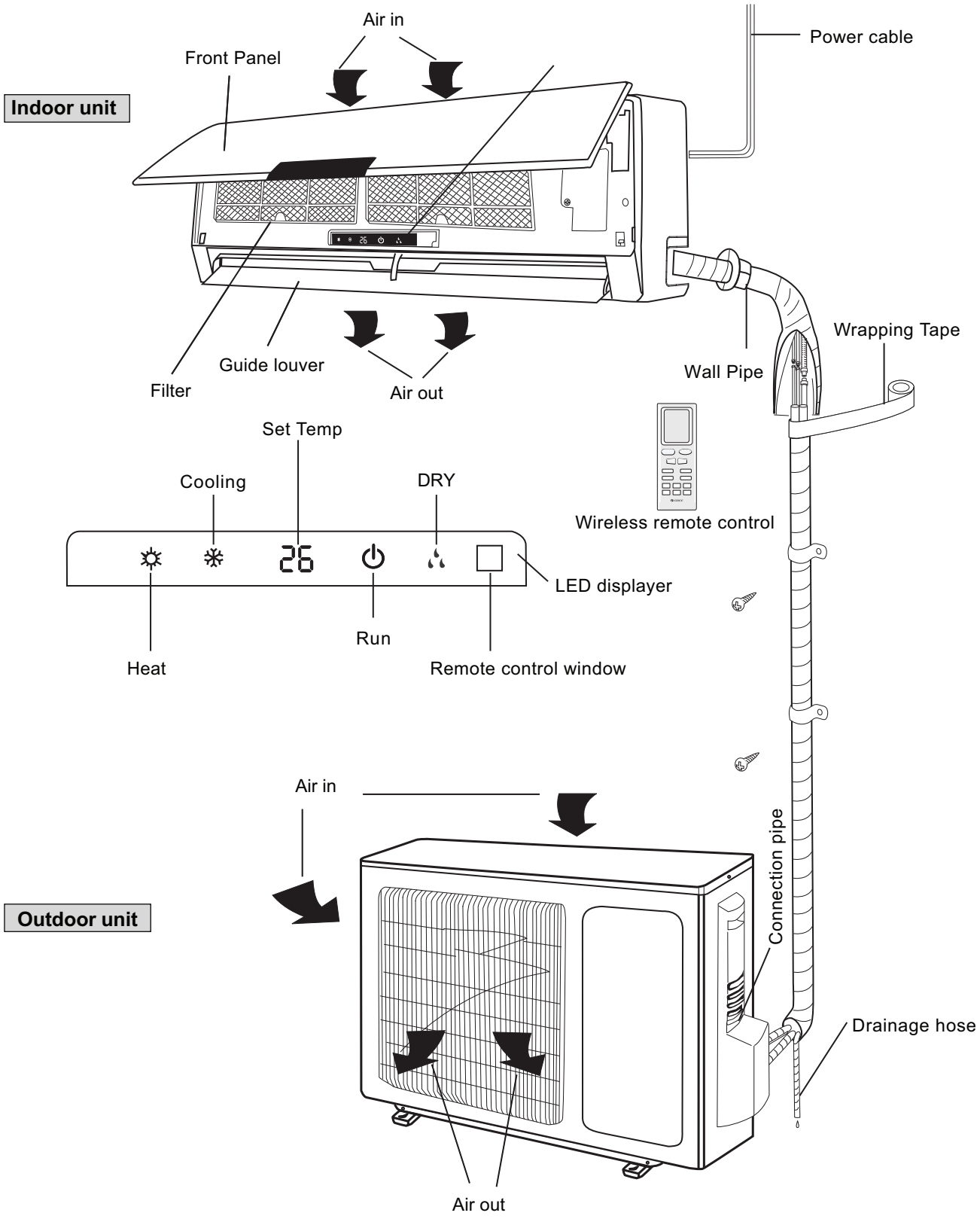
Product Specifications

Model		EVHC 09 DSAAAR		EVHC 12 DSAAAR	
Function		COOLING	HEATING	COOLING	HEATING
Rated Voltage		220-240V～		220-240V～	
Rated Frequency		80/50/25	80/53/25	95/68/25	95/74/25
Total Capacity (W/Btu/h)		3100/2500/1200 10600/9000/4036	3800/2800//1200 13000/9386/4096	3800/3500/1220 12970/12000/4172	4740/4000/1310 14660/13650/4480
Power Input (W)		1330/735/280	1365/745/310	1560/1060/295	1420/1100/330
Rated Input (W)		1400	1450	1600	1650
Rated Current (A)		6.1	6.3	7.0	7.2
Air Flow Volume (m^3/h) (H/M/L)**		500		560	
Dehumidifying Volume (l/h)		1.2		1.6	
EER / C.O.P (W/W)		2.33/3.4/4.21	2.784/3.69/3.87	2.44/3.3/4.14	3/3.64/3.97
Energy Class		A/A		A/A	
Indoor unit	Model of Indoor Unit	EVKC 09 DS		EVKC 12 DS	
	Fan Motor Speed (r/min) (H/M/L)	(1260)/1050/920/730	(1320)/1200/1100/950	(1260)/1070/900/730	
	Output of Fan Motor (w)	10		20	
	Input of Heater (w)	None		/	
	Fan Motor Capacitor (uF)	1.0		1.0	
	Fan Motor RLA(A)	0.1		0.254	
	Fan Type-Piece	Cross flow fan - 1		Cross flow fan - 1	
	Diameter-Length (mm)	φ85×596		φ92 X645	
	Evaporator	Aluminum fin-copper tube		Aluminum fin-copper tube	
	Pipe Diameter (mm)	Φ7		7	
	Row-Fin Gap(mm)	2-1.5		2-1.4	
	Coil length (l)×height (H)×coil width (L)	581X264X25.4		645X25.4X267	
	Swing Motor Model	MP24AA		MP24AA	
	Output of Swing Motor (W)	1.5		2.4	
	Fuse (A)	PCB 3.15A		PCB 3.15A	
	Sound Pressure Level dB (A) (H/M/L)	(40)/37/31/23		(41)/37/33/24	
	Sound Power Level dB (A) (H/M/L)***	(54)/50/46/43		(54)/51/48/45	
	Dimension (W/H/D) (mm)	790×265×170		845×275×180	
	Dimension of Package(W/H/D)(mm)	870×248×355		915×255×355	
	Net Weight /Gross Weight (kg)	9 / 12		10/13	

Outdoor unit	Model of Outdoor Unit		EVJC 09 DS	EVJC 12 DS
	Compressor Manufacturer/trademark		MITSUBISHI	MITSUBISHI
	Compressor Model		KNB092FHBMC	KNB092FHBMC
	Compressor Type		single-rotor	single-rotor
	L.R.A. (A)		25	25
	Compressor RLA(A)		3.89	8.9
	Compressor Power Input(W)		895	895
	Overload Protector		None	222KT-XH-2P-400mm
	Throttling Method		Capillary throttling	Capillary throttling
	Starting Method		Transducer starting	Transducer starting
	Working Temp Range (°C)		-15°C≤ T≤ 43°C	-10°C≤ T≤ 43°C
	Condenser		Aluminum fin-copper tube	Aluminum fin-copper tube
	Pipe Diameter (mm)		9.52	7
	Rows-Fin Gap(mm)		1-1.6	2-1.4
	Coil length(l) x height(H) x coil width(L)		608X508X22	608/498/22
	Fan Motor Speed (rpm) (H/M/L)		830±20	880±20
	Output of Fan Motor (W)		30	30
	Fan Motor RLA(A)		0.3	0.3
	Fan Motor Capacitor (uF)		2.5	2
	Air Flow Volume of Outdoor Unit		/	/
	Fan Type-Piece		Axial fan -1	Axial fan-1
	Fan Diameter (mm)		400	400
	Defrosting Method		Auto defrost	Auto defrost
	Climate Type		T1	T1
	Isolation		I	I
	Moisture Protection		IP24	IP24
	Permissible Excessive Operating Pressure for the Discharge Side(MPa)		3.8	3.8
	Permissible Excessive Operating Pressure for the Suction Side(MPa)		1.2	1.2
	Sound Pressure Level dB (A) (H/M/L)		53	≤ 54
	Sound Power Level dB (A) (H/M/L)		63	≤ 64
	Dimension (W/H/D) (mm)		848X260X540	848X260X540
	Dimension of Package (L/W/H)(mm)		878X360X580	878X360X580
	Net Weight /Gross Weight (kg)		35/40	36/41
	Refrigerant Charge (kg)		R410A / 0.8	R410A / 1.15
Connection Pipe	Length (m)		5	5
	Gas additional charge(g/m)		15	15
	Outer Diameter	Liquid Pipe (mm)	Φ6(1/4")	Φ6(1/4")
		Gas Pipe (mm)	Φ9.52(3/8")	Φ12(1/2")
	Max Distance	Height (m)	5	5
		Length (m)	15	20

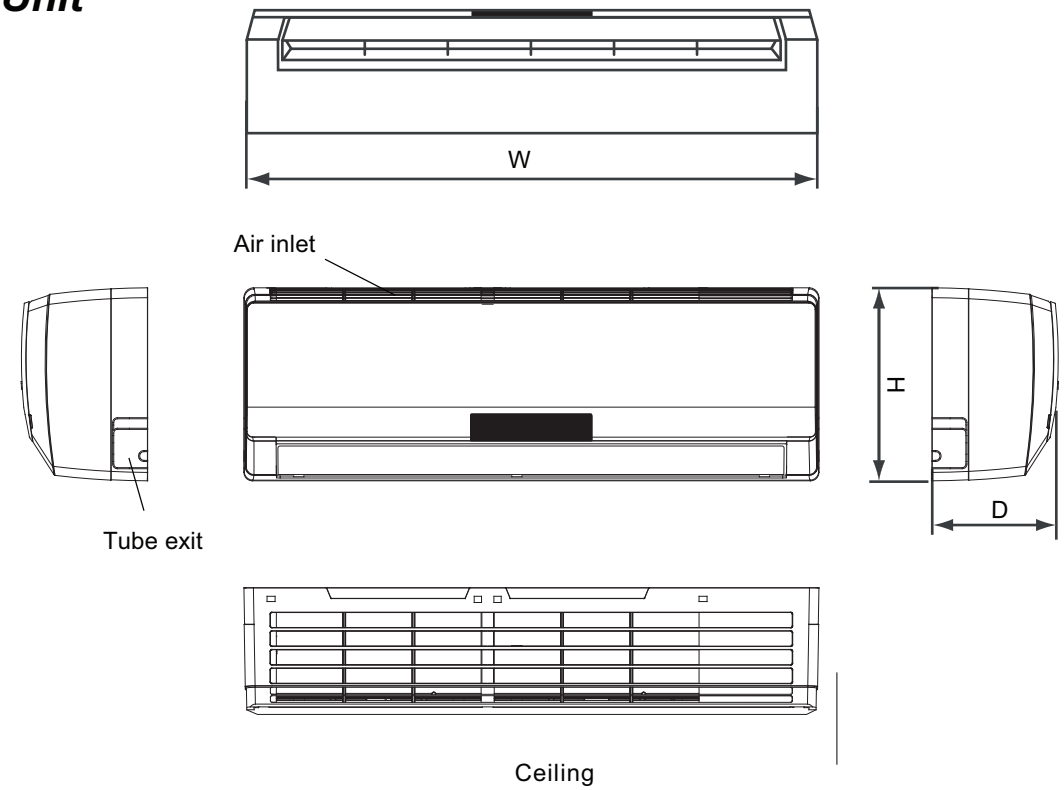
The above data is subject to change without notice. Please refer to the nameplate of the unit.

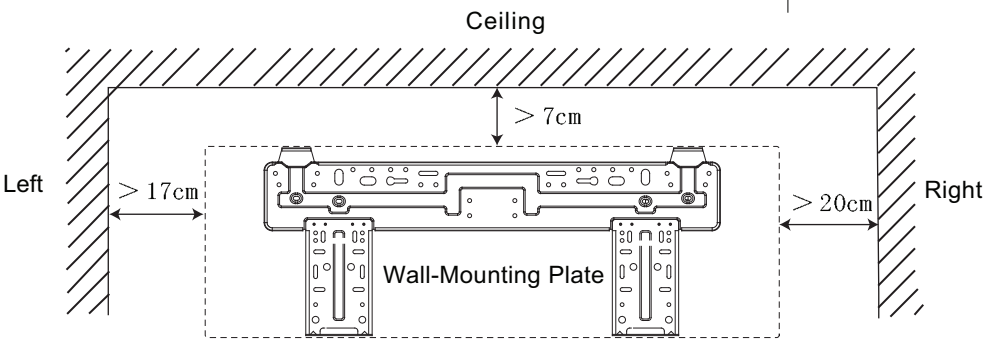
Part name

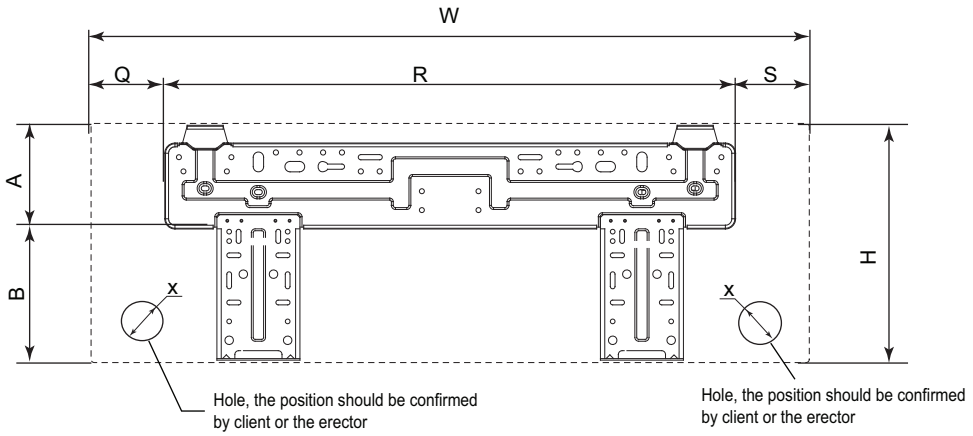

Indoor unit
Air in
Front Panel
Power cable
Filter
Guide louver
Air out
Wall Pipe
Wrapping Tape
Set Temp
Cooling
DRY
26
Wireless remote control
LED displayer
Heat
Run
Remote control window
Outdoor unit
Air in
Connection pipe
Drainage hose
Air out

Dimensions

Indoor Unit

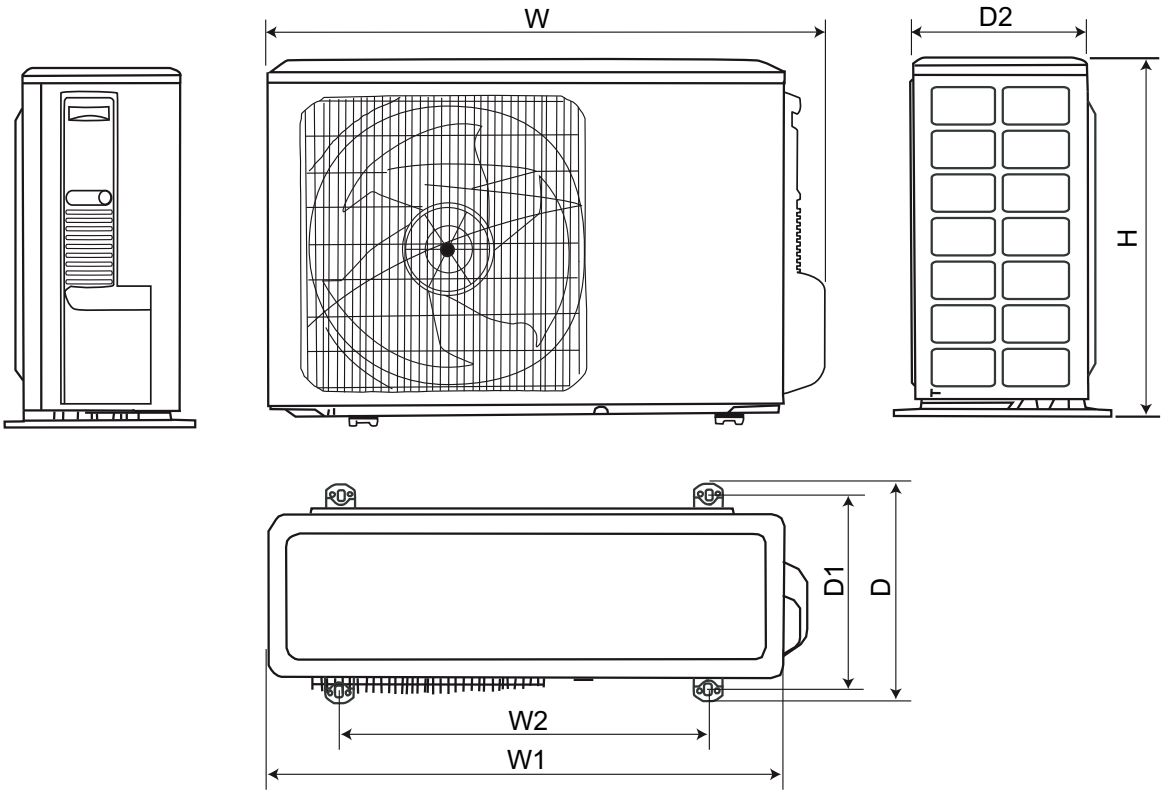




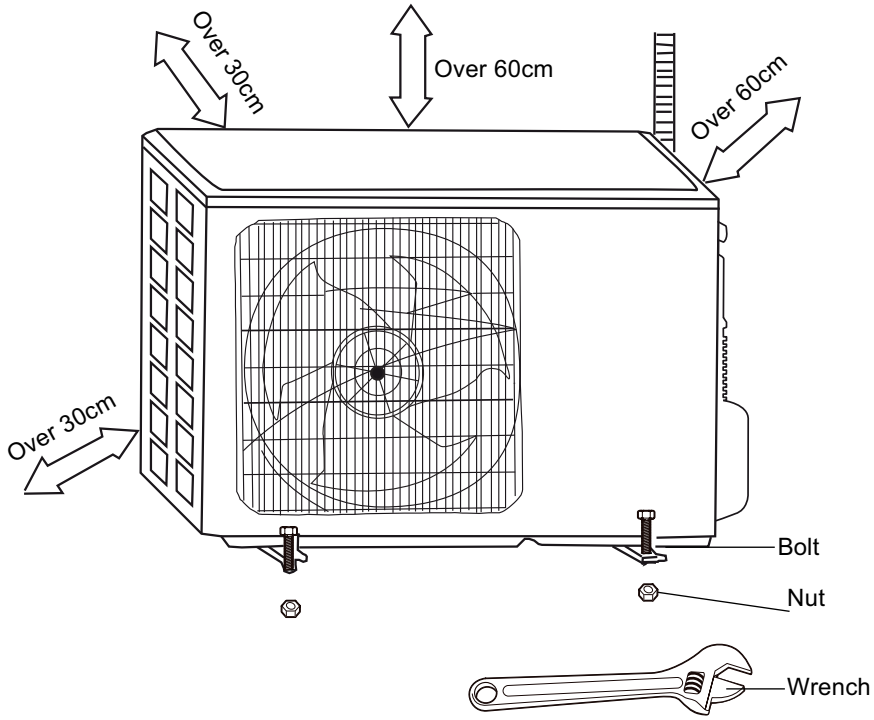


Model	W(mm)	H(mm)	D(mm)	Mounting Plate (mm)					Hole(mm)
				A	B	Q	R	S	X
EVKC 09 DS	790	265	170	110	140	148	605	32	55
EVKC 12 DS	845	275	180	110	147	129	542	169	55

Outdoor Unit



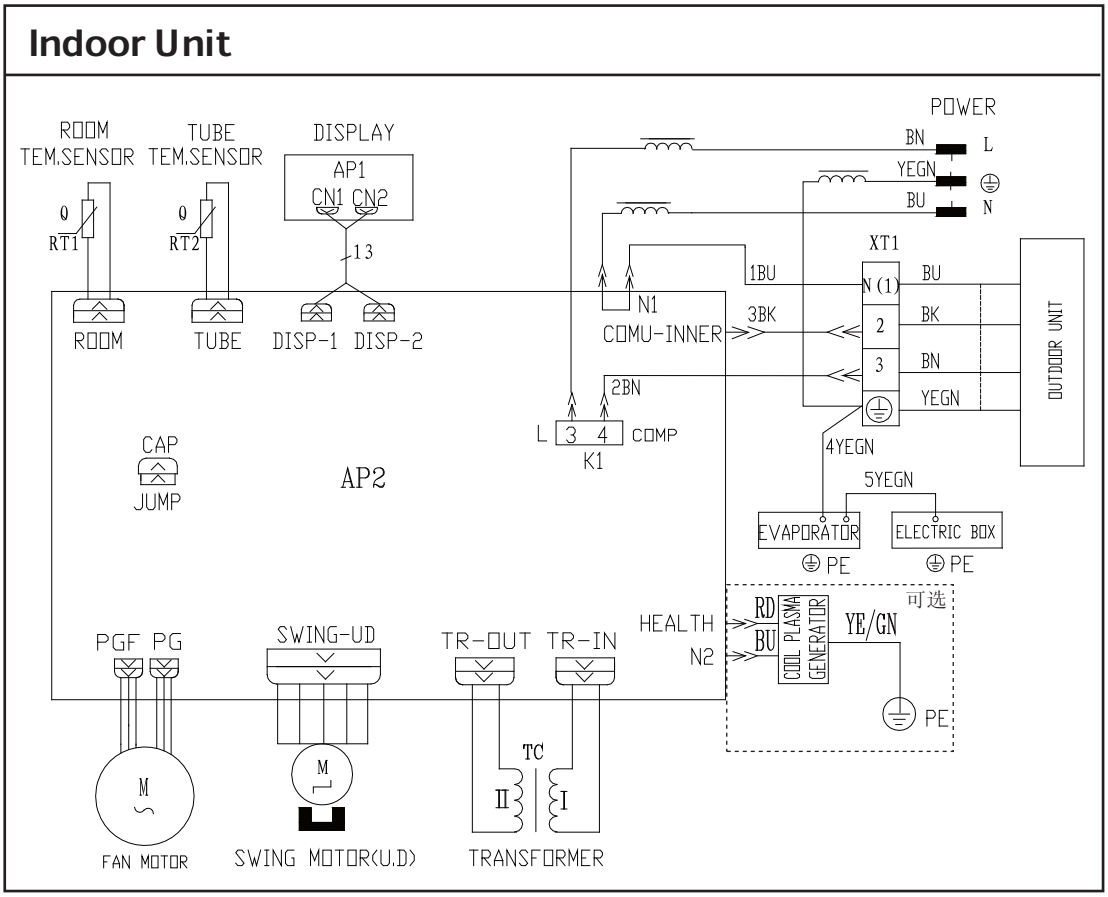
Unit:mm



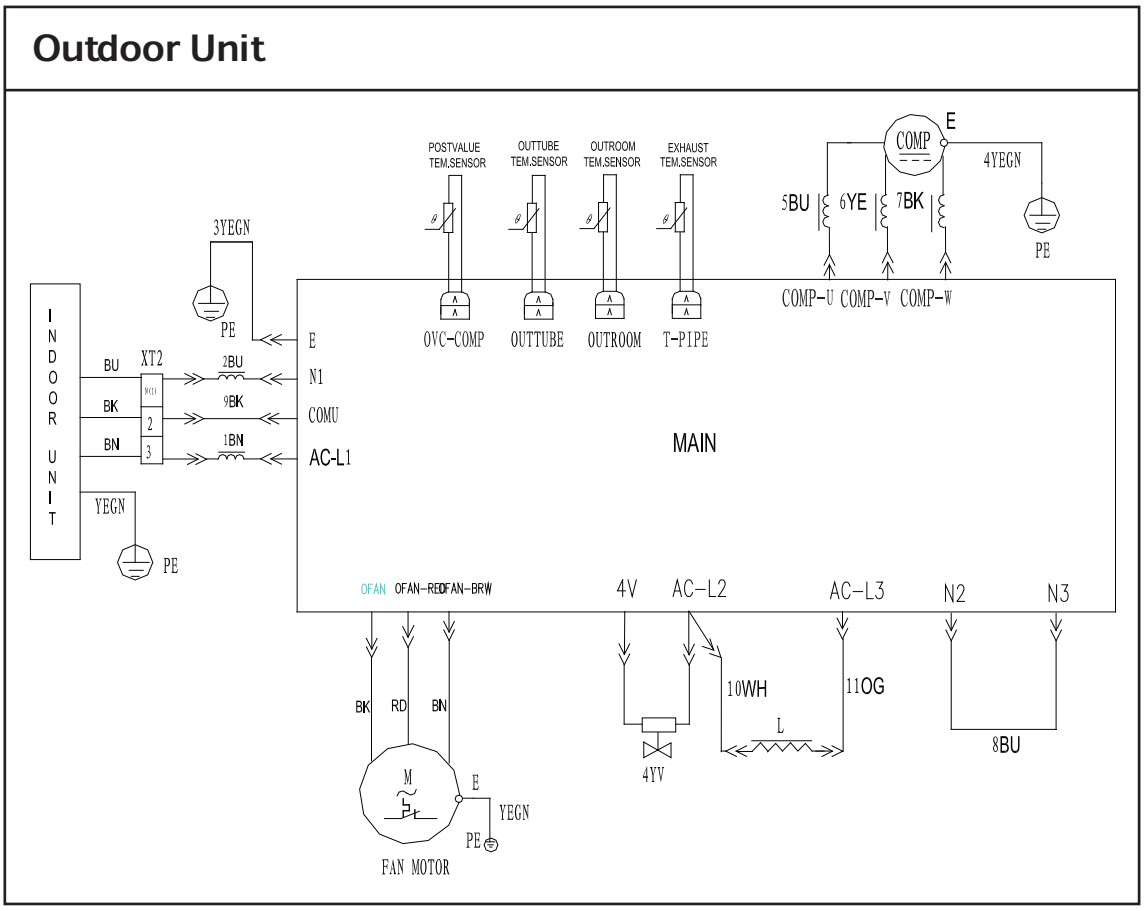
Model	W(mm)	W1(mm)	W2(mm)	H(mm)	D(mm)	D1(mm)	D2(mm)
EVJC 09 DS	848	762	540	540	320	286	256.6
EVJC 12 DS	848	762	540	540	320	286	256.6

Schematic Diagram

Wiring Diagram



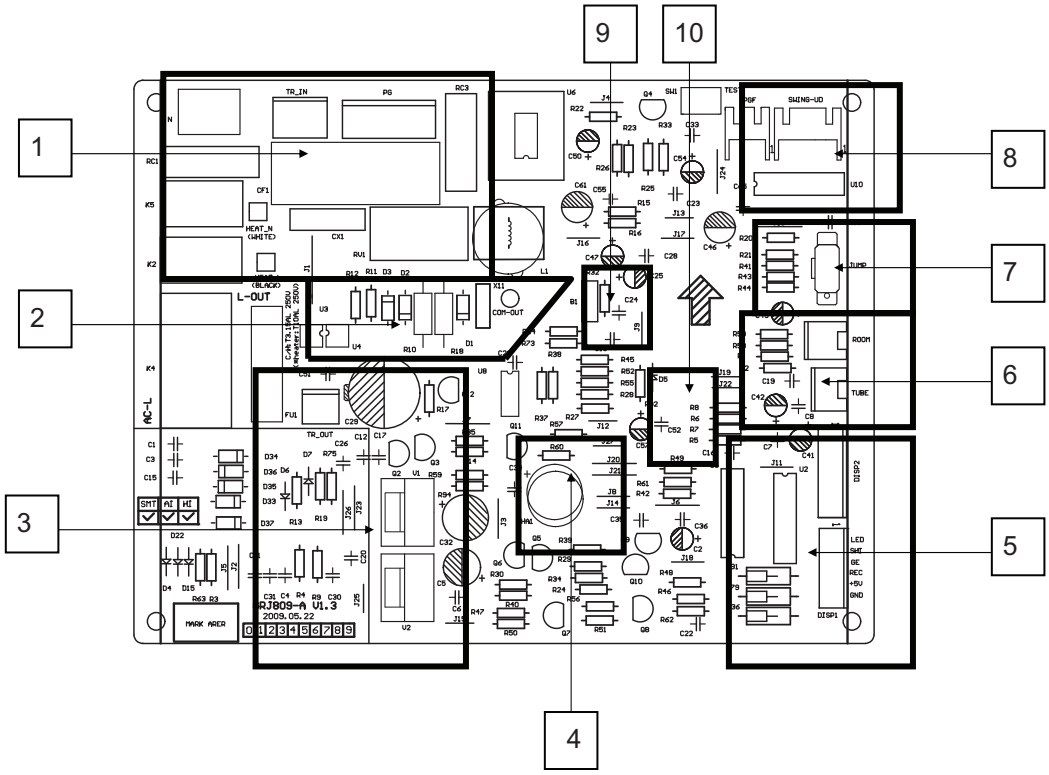
Outdoor Unit



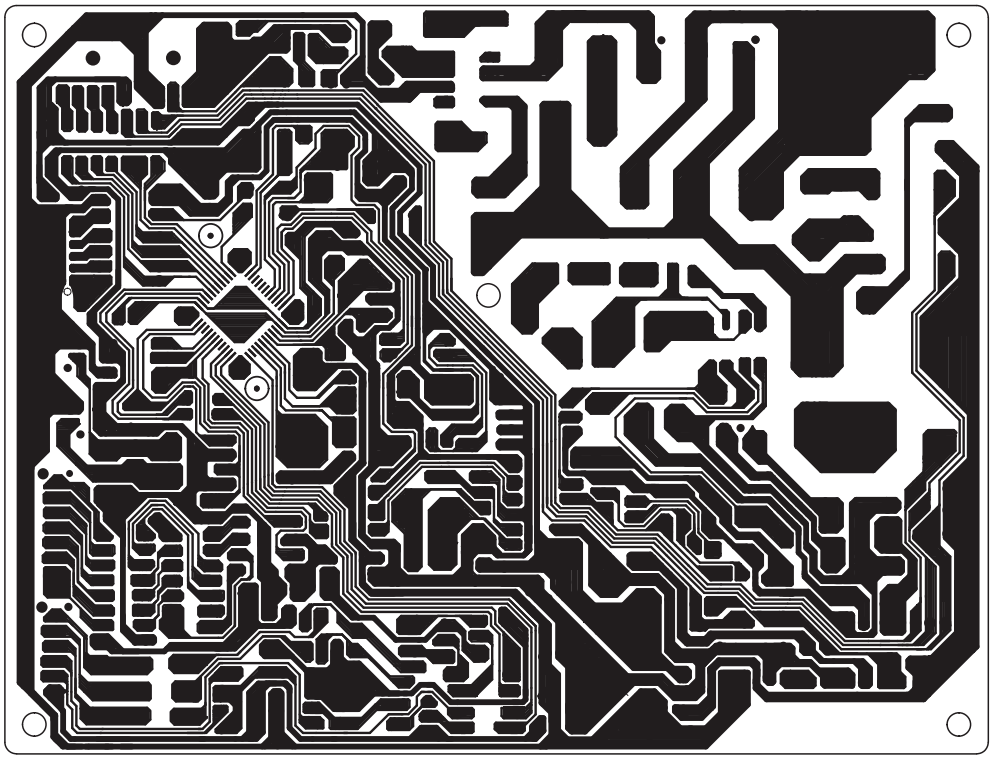
Printed Circuit Board Connector Wiring Diagram

INDOOR UNIT

• TOP VIEW



• BOTTOM VIEW



• TOP VIEW

Serial No.	Name of circuit	Testing contents
1	Commutating filter wave circuit	Before commutating, voltage: AC current; After commutated, voltage: DC current
2	Communication circuit	Communication voltage and communication wave shape
3	Stabilized voltage supply circuit	Chip power supply 5V; relay power supply 12V
4	Buzzer circuit	Buzzer sound
5	Displaying board displaying circuit	Displaying the numerical design correctness
6	Sensor detection temperature circuit	Input IC pin voltage value
7	Jumper cap ciruit	Whether jumper cap is installed or whether it is correctly installed
8	Fan motor feedback and driving circuit	Impulse waveform and impulse voltage
9	Crystal oscillatory circuit	Waveform and voltage
10	Reset circuit	Reset pin voltage and waveform

• BOTTOM VIEW

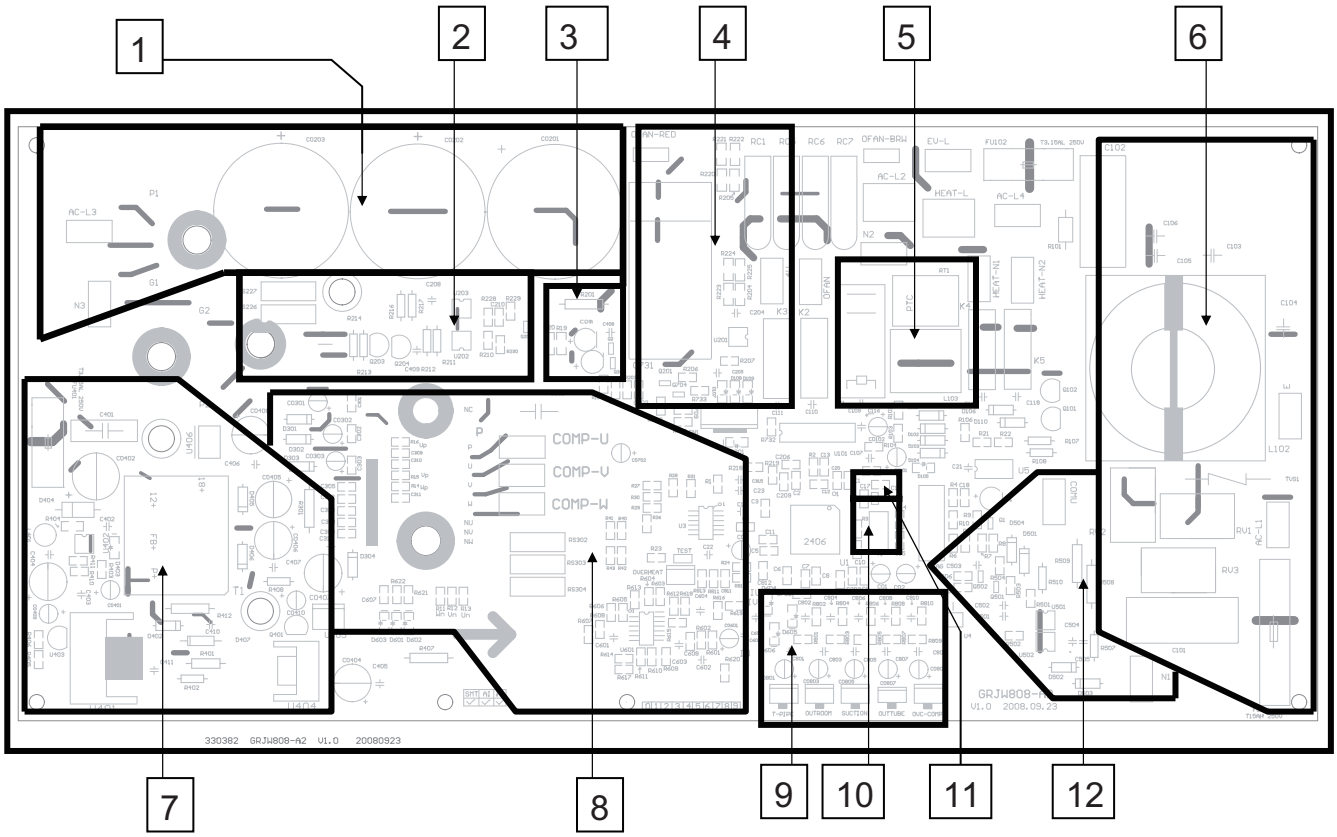
Note: unnoted that the pins are suspending

Indoor unit pin definition

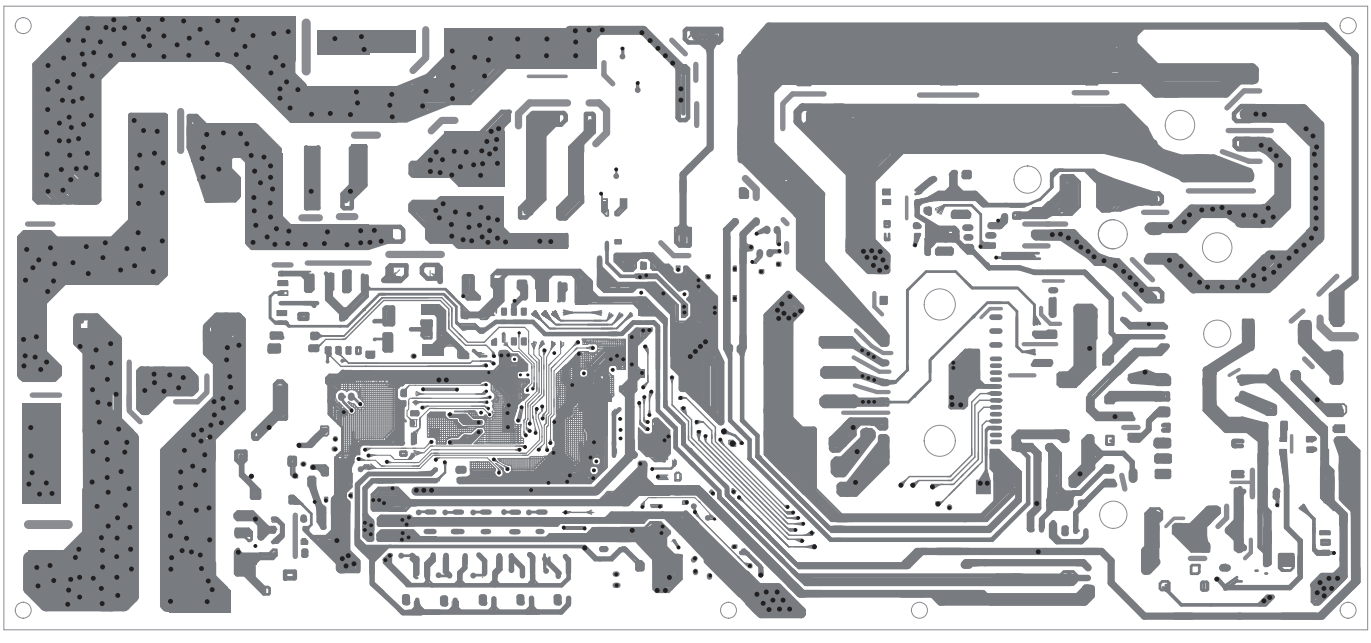
PIN	Definition	PIN	Definition
1	5V power supply Vcc	22	Retain the swing motor control Pin1 in advance
2	AD referrence voltage	23	Retain the swing motor control Pin2 in advance
3	AD referrence ground	24	Retain the swing motor control Pin3 in advance
4	PWM output	25	Retain the swing motor control Pin4 in advance
5	Reset output	26	Upper and lower swing motor control Pin 1
6	Motor feedback input	27	Upper and lower swing motor control Pin 2
7	Remote control receiving	28	Upper and lower swing motor control Pin 3
8	Buttons input	29	Upper and lower swing motor control Pin 4
9	Buzzer output	30	Cooling/heating selection port
10	Relay control	31	Display board code control G
11	Communication sending	32	Display board code control F
12	Communication receiving	33	Display board code control E
13	Display board code control S1	34	Display board code control D
14	Display board code control S2	35	Display board code control C
15	Ground	36	Display board code control B
16	Display board code control S3	37	Display board code control A
17	Display board code control S4	38	IIC Bus data port
18	Reset input	39	IIC Bus clock port
19	Surge signal input	40	Indoor ambient temperature sampling port
20	Surge singal output	41	Indoor tube temperature sampling port
21	Ground	42	Quick test port (retain the temperature sampling port)

Outdoor Unit

• TOP VIEW



• BOTTOM VIEW



• TOP VIEW

Serial No.	Name of circuit	Testing spot		Testing content
1	Commutating filter circuit			Before commutating voltage AC current; After commutating voltage DC current
2	PFC circuit	R212 underneath multimeter black pen contact with U406 radiator multimeter red pen contact with R212 underneath		Bus bar voltage, working voltage 15V
3	Indicator circuit			Indicator on/off times
4	Fan motor's four-way valve control circuit	R407right side multimeter black pen contact with U404 radiator multimeter red pen contact with R407 right side		Output voltage:12V
5	Current of power on testing circuit			PTC temperature
6	Strong current filter cuircuit	Voltage of R101 both sides		After filtered the waves, the voltage AC normal value is power supply voltage
7	Switch power supply circuit	The pen of multimeter black meter contacts with U404 radiator	The pen of multimeter red meter contacts with D304 negative port	IPM：15V
			The pen of multimeter red meter contacts with C405 underneath	Chips power supply:5V
			The pen of multimeter red meter contacts with Pins 7,8 of U4	Chips power supply: 3.3V
8	Compressor driving circuit	R201 left side The pen of multimeter black meter contacts with U404 radiator The pen of multimeter red meter contacts with R201 right side		Bus bar voltage The normal value is power supply voltage X1.42
9	Sensor detecting temperature circuit	R407 right side The pen of multimeter black meter contacts with U404 radiator The pen of multimeter red meter contacts with R407 right side		Input IC pin voltage value
10	Crystal oscillatory circuit	Both sides of R3 The pen of multimeter black meter contacts with U404 radiator The pen of multimeter red meter to test the upper side and lower side voltage of R3		Waveform and voltage
11	Reset circuit	C17 underneath The pen of multimeter black meter contacts with U404 radiator The pen of multimeter red meter contacts with C17 lower side		Reset voltage and wave normal value: once power on, instantly there is 200 millisecond lower voltage, after that is 3.3V all along
12	Communication circuit	C503 underneath The pen of multimeter black meter contacts with U404 radiator The pen of multimeter red meter contacts with C503 underneath		Communication receiving signal detection Normal value: in this point, there is inerratic change for voltage
		C524 underneath The pen of multimeter black meter contacts with U404 radiator The pen of multimeter red meter contacts with C524 underneath		Communication sending singal detection Normal value: in this point, there is inerratic change for voltage

• BOTTOM VIEW

Outdoor unit pin definition

PIN	Definition	PIN	Definition
1	JTAG pin	49	Quick test
2	Memory	50	Overload protection singal input
3	Digital ground	51	25/35 Models selection port
4	+3.3V	53	Digital ground
5	Fan motor PWM output	54	+3.3V
6	Module protection signal input	56	Fan motor speed feedback input
7	Memory	58	Digital ground
8	Phase-locked loop	59	+3.3V
9	Phase-locked loop	60	Electronic expansion valve driving signal
10	+3.3V	61	JTAG Pin
12	Power supply control output	62	JTAG Pin
13	Auxiliary heat control output	63	Digital ground
14	Four-way valve control output	64	+3.3V
16	Zero crossing detection signal input	67	U phase current sampling input
17	Communication sending	68	W phase current sampling input
18	Communication receiving	69	V phase current sampling input
19	Digital ground	70	Air exhaust sampling input
20	+3.3V	71	Ambient temperature sampling input
22	Indicator output	72	Air intake sampling input
23	PFC Protection signal input	73	Tube temperature sampling input
24	PFC driving level output	74	Current sampling input
26	Indicator output	75	Bus voltage sampling input
27	Electronic expansion valve driving signal	76	Electronic valve temperature sampling input
28	PWM Signal output	81	Digital ground
29	Digital ground	82	+3.3V
30	+3.3V	83	+3.3V
31	PWM Signal output	84	Digital ground
32	Electronic expansion valve driving signal	86	Indicator output
33	PWM Signal output	87	Crystal oscillatory pin input
34	Digital ground	88	Crystal oscillatory pin input
35	+3.3V	90	Digital ground
36	PWM Signal output	91	+3.3V
37	PWM Signal output	93	Reset signal
38	Electronic expansion valve driving signal	94	JTAG Pin
39	PWM Signal output	96	JTAG Pin
40	+5.0V	97	Digital ground
46	Digital ground	98	+3.3V
47	+3.3V	99	JTAG Pin
48	Fan motor control singal output	100	JTAG Pin

PCB function manual and operation method

1. Temperature Parameters

- Indoor preset temperature (T_{preset})
- Indoor ambient temperature ($T_{amb.}$)

2. Basic Functions

Once energized, in no case should the compressor be restarted within less than 3 minutes. In the situation that memory function is available, for the first energization, if the compressor is at stop before de-energization, the compressor will be started without a 3-minute lag; if the compressor is in operation before de-energization, the compressor will be started with a 3-minute lag; and once started, the compressor will not be stopped within 6 minutes regardless of changes in room temperature;

(1) Cooling Mode

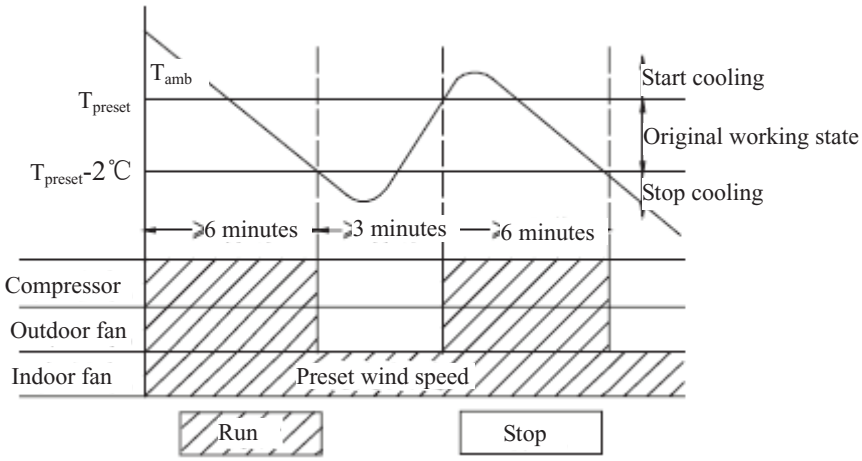
① Working conditions and process of cooling

When $T_{amb.} \geqslant T_{preset}$, the unit will enter cooling operation, in which case the indoor fan, the outdoor fan and the compressor will work and the indoor fan will run at preset speed.

When $T_{amb.} \leqslant T_{preset}$ -2℃, the compressor will stop, the outdoor fan will stop with a time lag of 30s, and the indoor fan will run at preset speed.

When T_{preset} -2℃< $T_{amb.}$< T_{preset} +1℃, the unit will remain at its previous state.

- Under this mode, the four-way valve will be de-energized and temperature can be set within a range from 16 to 30℃. If the compressor is shut down for some reason, the indoor fan and the swing device will operate at original state.



② Protection

- **Antifreeze protection**

Under cooling and dehumidifying mode, 6 minutes after the compressor is started:

If $T_{evap.} \leqslant 2$℃, the compressor will operate at reduced frequency.

If $T_{evap.} \leqslant -1$℃ is detected for durative 3 minutes, the compressor will stop, and after 30 seconds, the outdoor fan will stop; and under cooling mode, the indoor fan and the swing motor will remain at the original state.

If $T_{evap.} \geqslant 6$℃ and the compressor has remained at OFF for at least 3 minutes, the compressor will resume its original operation state.

- **Total current up and frequency down protection**

If $I_{total} \leqslant A$, frequency rise will be allowed; if $I_{total} \geqslant B$, frequency rise will not be allowed; if$I_{total} \geqslant C$, the compressor will run at reduced frequency; and if $I_{total} \geqslant D$, the compressor will stop and the outdoor fan will stop with a time lag of 30s.

(2) Dehumidifying Mode

① Working conditions and process of dehumidifying

If $T_{amb.} > T_{preset}$, the unit will enter cooling and dehumidifying mode, in which case the compressor and the outdoor fan will operate and the indoor fan will run at low speed.

If T_{preset} -2℃$\leqslant T_{amb.} \leqslant T_{preset}$, the compressor remains at its original operation state.

If $T_{amb.}$< T_{preset} -2℃, the compressor will stop, the outdoor fan will stop with a time lag of 30s, and the indoor fan will operate at low speed.

② Protection

Protection is the same as that under the cooling mode.

(3) Heating Mode

① Working conditions and process of heating

If $T_{amb.} \leq T_{preset} +2℃$, the unit enters heating mode, in which case the four-way valve, the compressor and the outdoor fan will operate simultaneously, and the indoor fan will run at preset speed in the condition of preset cold air prevention.

If $T_{amb.} \geq T_{preset} +5℃$, the compressor will stop, the outdoor fan will stop with a time lag of 30s, and the indoor fan will stop after 60-second blow at low speed

If $T_{preset} +2℃ < T_{amb.} < T_{preset} +5℃$, the unit will maintain its original operating status.

- Under this mode, the four-way valve is energized and temperature can be set within a range of 16 - 30℃. The operating symbol, the heating symbol and preset temperature are revealed on the display.

② Condition and process of defrost

When duration of successive heating operation is more than 45 minutes, or accumulated heating time more than 90 minutes, and one of the following conditions is reached, the unit will enter the defrost mode after 3 minutes.

a. $T_{outdoor\ amb.} \geq A℃$, $T_{outdoor\ tube} \leq W℃$;

b. $A℃ \leq T_{outdoor\ amb.} < B℃$, $T_{outdoor\ tube} \leq X℃$;

c. $B℃ \leq T_{outdoor\ amb.} < C℃$, $T_{outdoor\ tube} \leq Y℃$;

d. $T_{outer\ amb.} < C℃$, $T_{outer\ tube} \leq Z℃$

At that time, the indoor fan stops and the compressor stops, and after 30 seconds the outer fan will stop, and then after 30 seconds, the four-way valve will stop. After 30 seconds, the compressor is initiated for raising the frequency to defrost frequency.

When the compressor has operated under defrost mode for 7.5 minutes, or $T_{outer\ tube} \geq E℃$, the compressor will be converted to 53Hz operation. After 30 seconds, the compressor will stop. And after another 30 seconds, the four-way valve will be opened, and after 60 seconds, the compressor and the outer fan will be started, the indoor fan will run under preset cold air prevention conditions, and H1 will be displayed at temperature display area on the display panel. Defrost frequency is 70Hz.

3.Protection

◆ **Cold air prevention**

The unit is started under heating mode (the compressor is ON):

① In the case of $T_{indoor\ amb.} < 24℃$: if $T_{tube} \leq 40℃$ and the indoor fan is at stop state, the indoor fan will begin to run at low speed with a time lag of 2 minutes. Within 2 minutes, if $T_{tube} > 40℃$, the indoor fan also will run at low speed; and after 1-minute operation at low speed, the indoor fan will be converted to operation at preset speed. Within 1-minute low speed operation or 2-minute non-operation, if $T_{tube} > 42℃$, the fan will run at present speed.

② In the case of $T_{indoor\ amb.} \geq 24℃$: if $T_{tube} \leq 42℃$, the indoor fan will run at low speed, and after one minute, the indoor fan will be converted to preset speed. Within one-minute low speed operation, if $T_{tube} > 42℃$, the indoor fan will be converted to preset speed.

Note: $T_{indoor\ amb.}$ indicated in ① and ② refers to, under initially heating mode, the indoor ambient temperature before the command to start the compressor is performed according to the program, or after the unit is withdrawn from defrost, the indoor ambient temperature before the defrost symbol is cleared.

◆ **Total current up and frequency down protection**

If the total current $I_{total} \leq W$, frequency rise will be allowed; if $I_{total} \geq X$, frequency rise will not be allowed; if $I_{total} \geq Y$, the compressor will run at reduced frequency; and if $I_{total} \geq Z$, the compressor will stop and the outdoor fan will stop with a time lag of 30s.

(4) Fan Mode

Under the mode, the indoor fan will run at preset speed and the compressor, the outdoor fan, the four-way valve and the electric heater will stop.

- Under the mode, temperature can be set within a range of 16 - 30℃.

(5) AUTO Mode

① Working conditions and process of AUTO mode

Under AUTO mode, standard cooling temperature T_{preset} is 25℃ and standard heating temperature T_{preset} is 18℃.

a. Once energized, if $T_{amb.} \leq 20℃$, the unit will be started under heating mode; if $20℃ < T_{amb.} < 25℃$, the unit will run under fan mode and the run indicator will be bright; and if $T_{amb.} \geq 25℃$, the unit will be started under cooling mode.

a. Under AUTO mode, if $T_{amb.} \geq T_{preset}$ is detected, the unit will select to run under cooling mode, in which case implicit preset temperature is 25℃; if $T_{amb.} \leq T_{preset}$-2℃, the compressor will stop, the outdoor fan will stop with a time lag of 1 minute, and the indoor fan will run at preset speed; and if T_{preset} –(-2℃)< $T_{amb.}$< T_{preset}, the unit will remain at its original state.

b. Under AUTO mode, if $T_{amb.} \leq T_{preset}$+2℃ is detected, the unit will select to run under heating mode, in which case implicit preset temperature is 18℃; if $T_{amb.} \geq T_{preset}$+5℃, the compressor will stop, the outdoor fan will stop with a time lag of 1 minute, and the indoor fan will run under the mode of residue heat blowing; and if T_{preset} +2℃< $T_{amb.}$< T_{preset}+5℃, the unit will remain at its original state. The cooling-only unit will run under fan mode.

c. Under AUTO mode, if 20℃< $T_{amb.}$< 25℃, the unit will remain at its original state.

2.Protection

a. In cooling operation, protection is the same as that under the cooling mode;

b. In heating operation, protection is the same as that under the heating mode;

c. When ambient temperature changes, operation mode will be converted preferentially. Once started, the compressor will remain unchanged for at least 6 minutes.

(6) Common Protection Functions and Fault Display under COOL, HEAT, DRY and AUTO Modes

① Overload protection

T_{tube}: measured temperature of outdoor heat exchanger under cooling mode; and measured temperature of indoor heat exchanger under heating mode.

1) Cooling overload

a. If $T_{tube} \leq 52$℃, the unit will return to its original operation state.

b. If $T_{tube} \geq 55$℃, frequency rise is not allowed.

c. If $T_{tube} \geq 58$℃, the compressor will run at reduced frequency.

d. If $T_{tube} \geq 62$℃, the compressor will stop and the indoor fan will run at preset speed.

2) Heating overload

a. If $T_{tube} \leq 52$℃, the unit will return to its original operation state.

b. If $T_{tube} \geq 55$℃, frequency rise is not allowed.

c. If $T_{tube} \geq 58$℃, the compressor will run at reduced frequency.

d. If $T_{tube} \geq 62$℃, the compressor will stop and the indoor fan will blow residue heat and then stop.

② Exhaust temperature protection of compressor

If exhaust temperature ≥98℃, frequency is not allowed to rise.

If exhaust temperature ≥103℃, the compressor will run at reduced frequency.

If exhaust temperature ≥110℃, the compressor will stop.

If exhaust temperature ≤90℃ and the compressor has stayed at stop for at least 3 minutes, the compressor will resume its operation.

③ Communication fault

If the unit fails to receive correct signals for durative 3 minutes, communication fault can be justified and the whole system will stop.

④ Module protection

Under module protection mode, the compressor will stop. When the compressor remains at stop for at least 3 minutes, the compressor will resume its operation. If module protection occurs six times in succession, the compressor will not be started again.

⑤ Overload protection

If temperature sensed by the overload sensor is over 115℃, the compressor will stop and the outdoor fan will stop with a time lag of 30 seconds. If temperature is below 95℃, the overload protection will be relieved.

⑥ If voltage on the DC bus is below 150V or over 420V, the compressor will stop and the outdoor fan will stop with a time lag of 30 seconds. When voltage on the DC bus returns to its normal value and the compressor has stayed at stop for at least 3 minutes, the compressor will resume its operation.

⑦ Faults of temperature sensors

Designation of sensors	Faults
Indoor ambient temperature	The sensor is detected to be open-circuited or short-circuited for successive 30 seconds
Indoor tube temperature	The sensor is detected to be open-circuited or short-circuited for successive 30 seconds
Outdoor ambient temperature	The sensor is detected to be open-circuited or short-circuited for successive 30 seconds
Outdoor tube temperature	The sensor is detected to be open-circuited or short-circuited for successive 30 seconds, and no detection is performed within 10 minutes after defrost begins.
Exhaust	After the compressor has operated for 3 minutes, the sensor is detected to be open-circuited or short-circuited for successive 30 seconds.
Overload	After the compressor has operated for 3 minutes, the sensor is detected to be open-circuited or short-circuited for successive 30 seconds.

3. Other Controls

(1) ON/OFF

Press the remote button ON/OFF: the on-off state will be changed once each time you press the button.

(2) Mode Selection:

Press the remote button MODE, then select and show in the following ways: AUTO, COOL, DRY, FAN, HEAT, AUTO.

(3) Temperature Setting Option Button

Each time you press the remote button TEMP+ or TEMP-, the setting temperature will be up or down by 1℃. Regulating Range: 16~30℃, the button is useless under the AUTO mode.

(4) Time Switch

You should start and stop the machine according to the setting time by remote control.

(5) 5. SLEEP State Control

a. When the air conditioner is under the mode of COOL, DRY, and the SLEEP mode has been set well, after the SLEEP state keeps about 1 hour, the pre-setting T will raise 1℃, and it will raise 1℃ again after 2 hours, so it raise 2℃ in 2 hours, then it will run on at the setting temperature and wind speed.

b. When the air conditioner is under the mode of HEAT, and the Timer has been set well, after the SLEEP state keeps about 1 hour, the pre-setting T will reduce 1℃, and it will reduce 1℃ again after 2 hours, so it reduce 2℃ in 2 hours, then it will run on at the setting temperature and wind speed.

c. The setting temperature keeps the same under the FAN mode and AUTO mode.

(6) Indoor Fan Control

The Indoor Fan can be set as HIGH, MED, LOW by remote control, and the Indoor Fan will be respectively run at high, medium, low speed. It will also be set as AUTO, and the Indoor Fan is as the followings at the automatic wind speed.

Cooling mode: $T_{ring} \geq T_{setting} + 2$, high speed; $T_{setting} - 2 < T_{ring} < T_{setting} + 2$, medium speed; $T_{ring} \leq T_{setting} - 2$, low speed.

Sending wind mode: : $T_{ring} > T_{setting} + 4$, high speed; $T_{setting} + 2 \leq T_{ring} \leq T_{setting} + 4$, medium speed; $T_{ring} < T_{setting} + 2$, low speed.

Moisture removal mode: force to be set as the low speed

Heating mode: $T_{ring} \leq T_{setting} + 1$ high speed; $T_{setting} + 1 < T_{ring} < T_{setting} + 5$, medium speed; $T_{ring} \geq T_{setting} + 2$, low speed.

(7) Buzzer Control

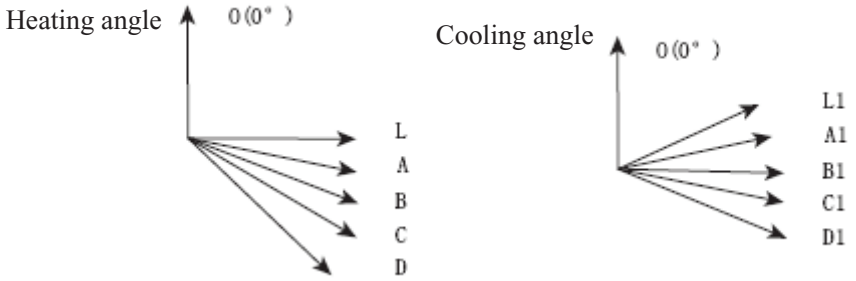
The buzzer will send a “Di” sound when the air conditioner is powered up or received the information sent by the remote control or there is a button input, the single tube cooler doesn’t receive the remote control ON signal under the mode of heating mode.

(8) Auto button

If the controller is on, it will stop by pressing the button, and if the controller is off, it will be automatic running state by pressing the button, swing on and light on, and the main unit will run based on the remote control if there is remote control order.

(9) Up-and-Down Swinging Control

When power on, the up-and-down motor will firstly move the air deflector to o counter-clockwise, close the air outlet. After starting the machine, if you don’t set the swinging function, heating mode and auto-heating mode, the up-and-down air deflector will move to D clockwise; under other modes, the up-and-down air deflector will move to L1. If you set the swinging function when you start the machine, then the wind blade will swing between L and D. The air deflector has 7 swinging states: Location L, Location A, Location B, Location C, Location D, Location L to Location D, stop at any location between L-D (the included angle between L~D is the same). The air deflector will be closed at 0 Location, and the swinging is effectual only on condition that setting the swinging order and the inner fan is running. The indoor fan and compressor may get the power when air deflector is on the default location.



(10) Display

① Operation pattern and mode pattern display

All the display patterns will display for a time when the power on, the operation indication pattern will display in red under standby status. When the machine is start by remote control, the indication pattern will light and display the current operation mode (the mode light includes: Cooling, heating and dehumidify). If you close the light key, all the display patterns will close.

② Double-8 display

According to the different setting of remote control, the nixie light may display the current temperature (the temperature scope is from 16 ℃ to 30 ℃) and indoor ambient temperature. The heating and air supply temperature will display 25℃ under auto-mode, the temperature will display 18℃ under the heating mode, and the temperature will display H1 under the defrosting mode.(If you set the fahrenheit temperature display, the nixie light will display according to fahrenheit temperature)

(11) Protection function and failure display

E2: Freeze-proofing protection E4: Exhausting protection E5: Overcurrent protection
E6: Communication failure E8: Overload protection
F1: Indoor ambient sensor start and short circuit (continuously measured failure in 30S)
F2: Indoor evaporator sensor start and short circuit (continuously measured failure in 30S)
F3: Outdoor ambient sensor start and short circuit (continuously measured failure in 30S)
F2: Outdoor condenser sensor start and short circuit (continuously measured failure in 30S, and don't measure within 10 minutes after defrosted)
F5: Outdoor exhausting sensor start and short circuit (continuously measured failure in 30S after the compressor operated 3 minutes)
H3: Overload protection of compressor H5: Module protection
PH: High-voltage protection PL: Low-voltage protection
P1: Nominal cooling and heating P2: Maximum cooling and heating
P3: Medium cooling and heating P3: Minimum cooling and heating

(12) Drying Function

You may start or stop the drying function under the modes of cooling and dehumidify at the starting status (The modes of automatism, heating and air supply do not have drying function). When you start the drying function, after stop the machine by pressing the switch button, you should keep running the inner fans for 10 minutes under low air damper (The swing will operate as the former status within 10 minutes, and other load is stopped), then stop the entire machine; When you stop the drying function, press the switch button will stop the machine directly.

When you start the drying function, operating the drying button will stop the inner fans and close the guide louver.

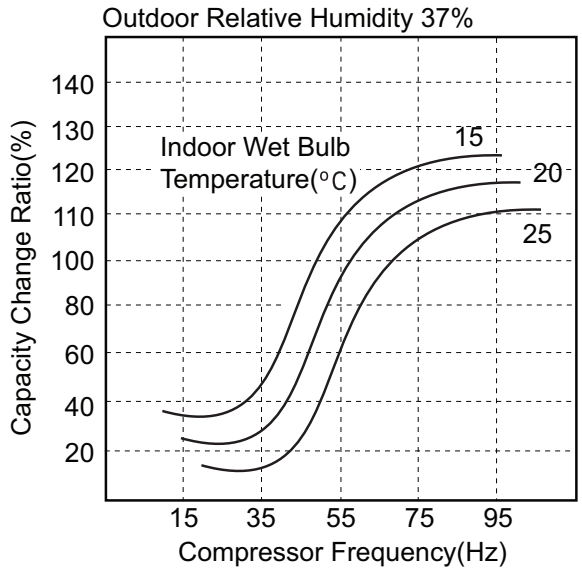
(13) Memory function when interrupting the power supply

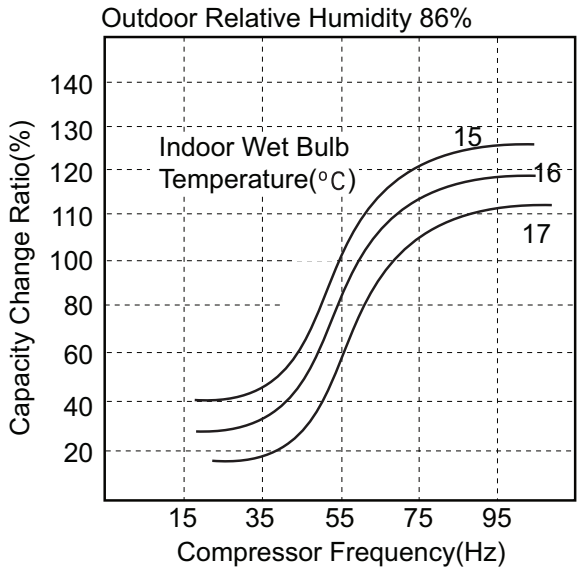
Memory content: mode, swing function, light, set temperature and wind speed.

After interrupted the power supply, the machine will start when recovering the power according to the memory content automatically. If the last remote control command has not set the timed function, the system will remember the last remote control command and operate according it. If the last remote control command has set timed function and the power supply is interrupted before the timed time, the system will remember the timed function of the last remote control command, the timed time will recounted form power on. If the last remote control command has set timed function, the time is out and the system is start or stop according to the set time when the power supply is interrupted, the system will remember the operation status before the power supply was interrupted, and do not carry out timed action; The timed clock will not remembered.

Appending data

Table showing operation frequency limits for cooling and heating





Performance date for both cooling and heating

COOLING:

Temperature condition (°C)		Model name	Standard pressure	Heat exchanger pipe temp.		Indoor fan mode	Outdoor fan mode	Compressor revolution (rps)
Indoor	Outdoor		P (MPa)	T1 (°C)	T2 (°C)			
27/19	35/–	09K	0.8 to 1.1	12 to 14	41 to 43	High	High	50
		12K	0.8 to 1.0	10 to 12	43 to 45	High	High	69

HEATING:

Temperature condition (°C)		Model name	Standard pressure	Heat exchanger pipe temp.		Indoor fan mode	Outdoor fan mode	Compressor revolution (rps)
Indoor	Outdoor		P (MPa)	T1 (°C)	T2 (°C)			
20/–	7/6	09K	2.8 to 3.2	37 to 38	2 to 4	High	High	53
		12K	2.8 to 3.2	42 to 44	0 to 3	High	High	74

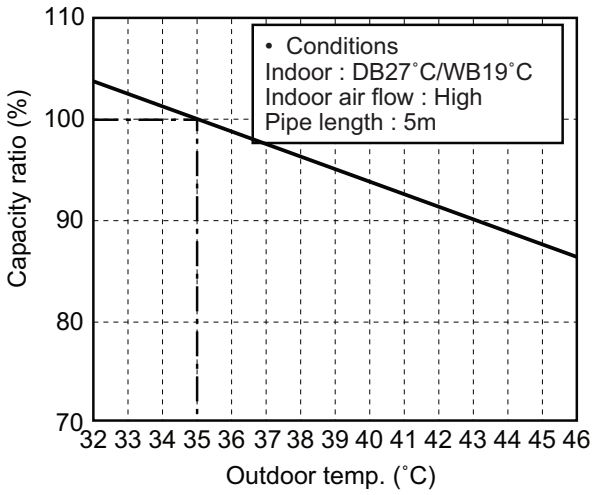
NOTES :

(1) Measure surface temperature of heat exchanger pipe around center of heat exchanger path U bent. (Thermistor themometer)

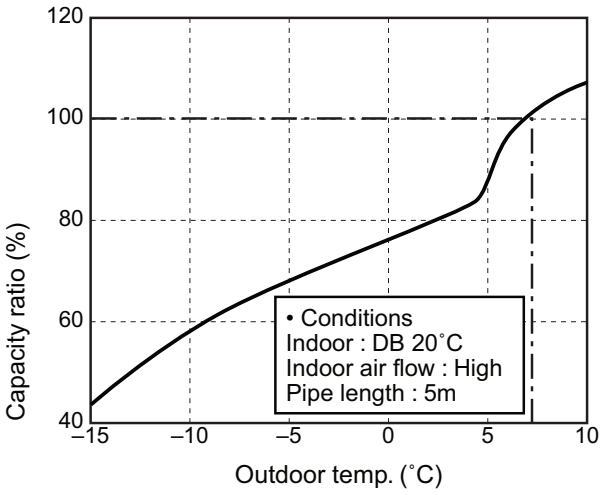
(2) Connecting piping condition : 5 m

Expanded capacity data tables for both cooling and heating

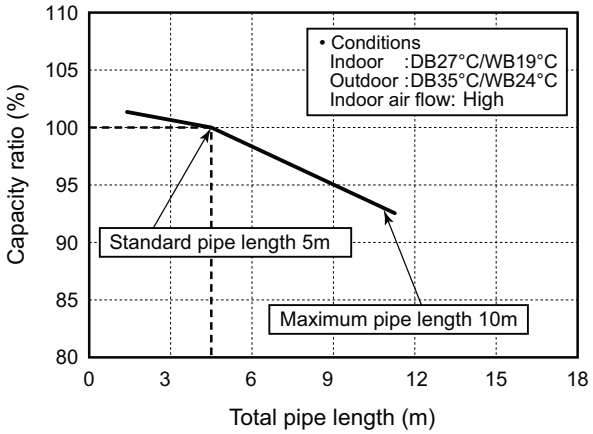
Cooling

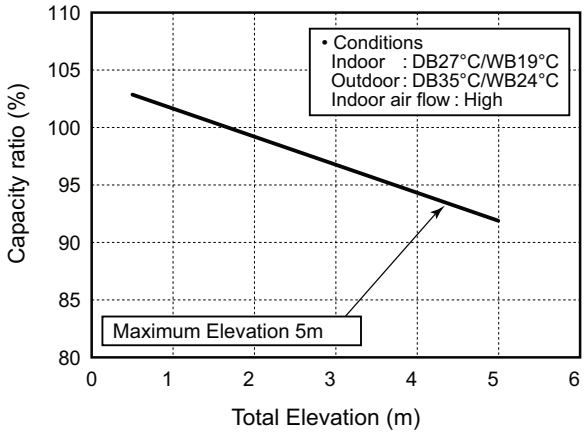


Heating



Capacity Variation Ratio According to Pipe Length

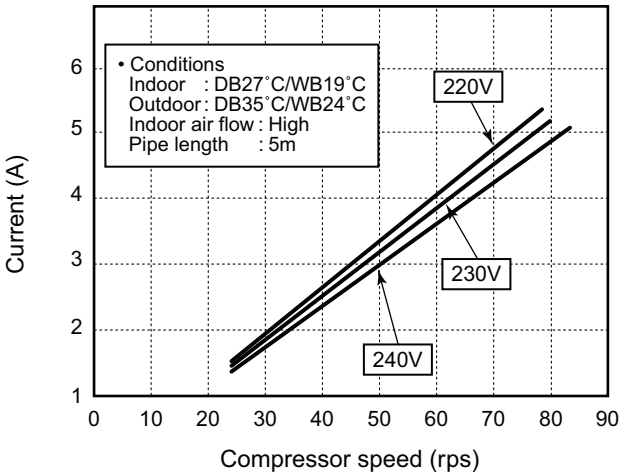




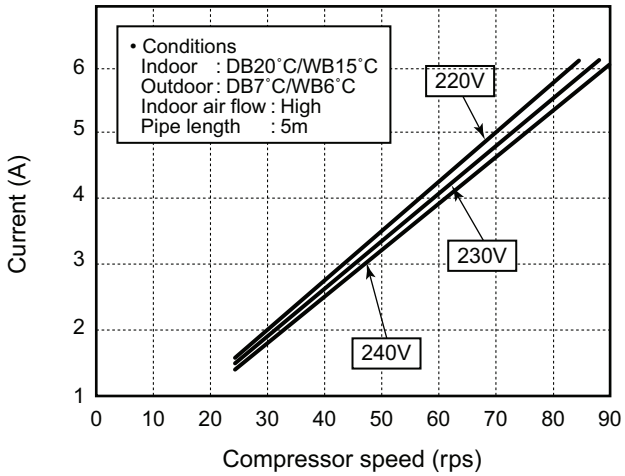
Operation Characteristic Curve

EVHC 09 DSAAAR

Cooling

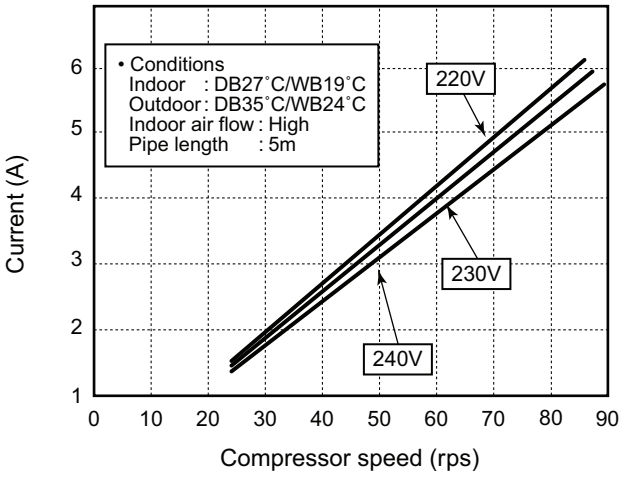


Heating

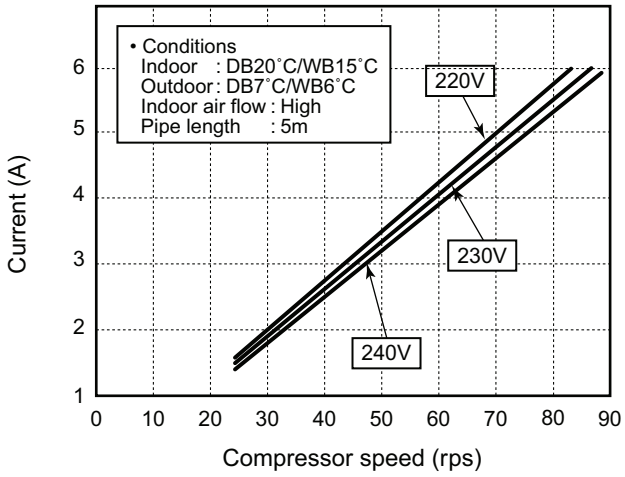


EVHC 12 DSAAAR

Cooling

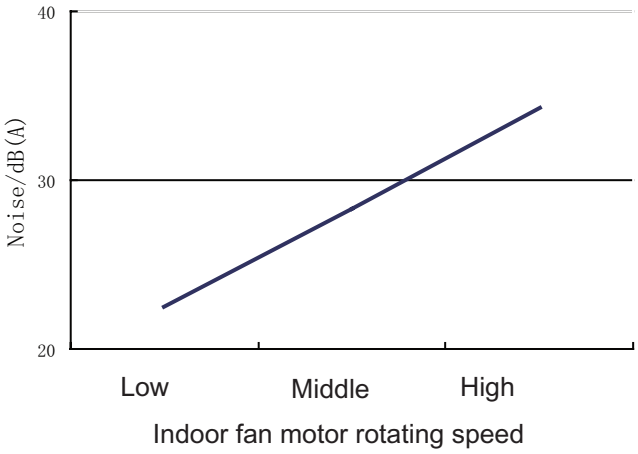


Heating

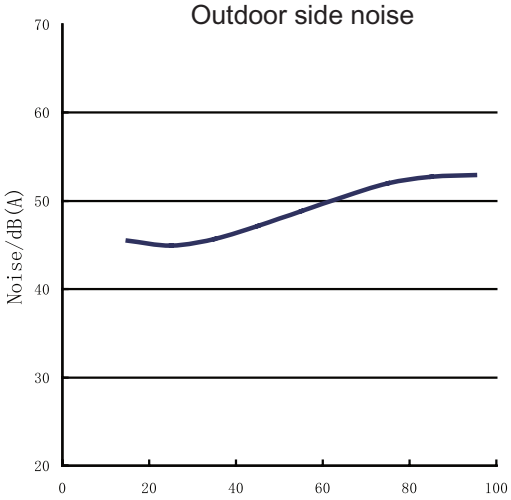


Noise criteria curve tables for both models

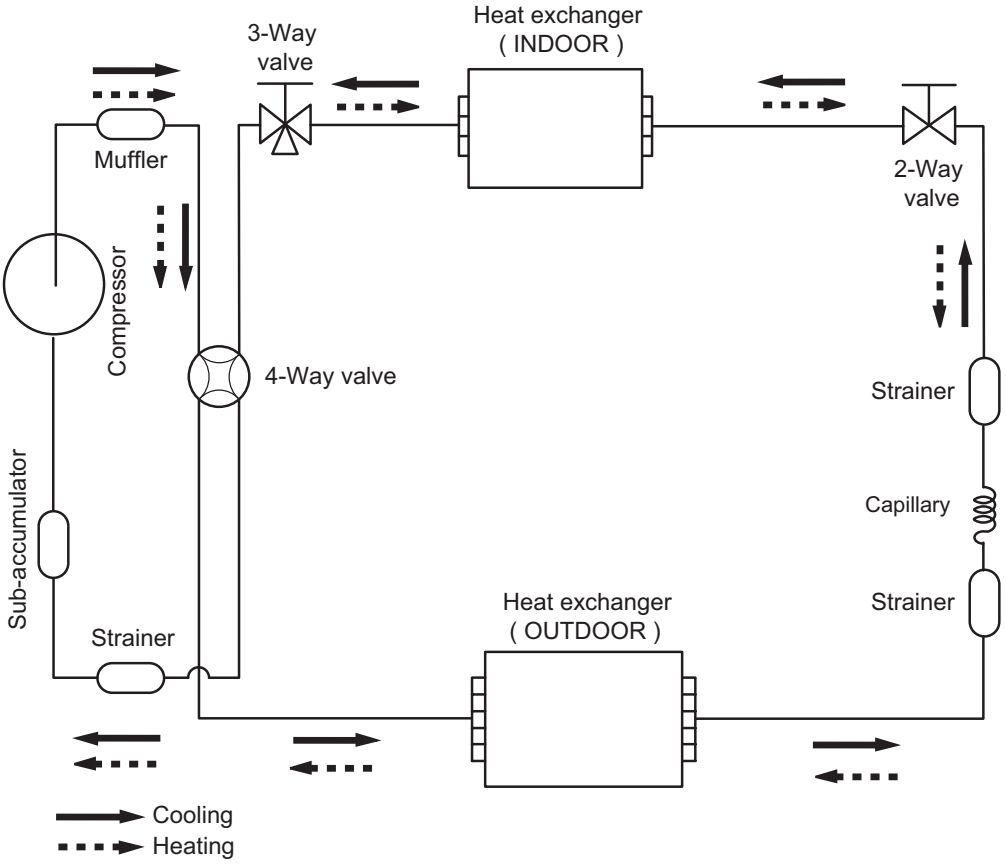
Indoor side noise when blowing



Outdoor side noise



REFRIGERANT SYSTEM DIAGRAM



Installation

Important Notices

1. The unit installation work must be done by qualified personnel according to the local rules and this manual.
2. Before installating, please contact with local authorized maintenance center, if unit is not installed by the authorized maintenance center, the malfunction may not solved, due to discommodious contacts.
3. When removing the unit to the other place, please firstly contact with the authorized Maintenance Center in the local area.

Basic Requirements For Installation Position

Install in the following place may cause malfunction. If it is unavoidable contact with service center please:

- Place where strong heat sources, vapors, flammable gas or volatile object are emitted.
- Place where high-frequency waves are generated by radio equipment, welders and medical equipment.
- Place where a lot of salinities such as coast exists.
- Place where the oil (machine oil) is contained in the air.
- Place where a sulfured gas such as the hot spring zones is generated.
- Other place with special circumstance.

Indoor Unit Installation Position Selection

1. The air inlet and outlet vent should be far from the obstruction, make sure that the air can be blown through the whole room.
2. Select a position where the condensing water can be easily drained out, and the place is easily connected for outdoor unit .
3. Select a location where the children can not reach.
4. Can select the place where is strong enough to withstand the full weight and vibration of the unit. And will not increase the noise.
5. Be sure to leave enough space to allow access for routine maintenance. The height of the installed location should be 250cm or more from the floor.
6. Select a place about 1m or more away from TVset or any other electric appliances.
7. Select a place where the filter can be easily taken out.
8. Make sure that the indoor unit installation should accord with installation dimension diagram requirements.
9. Do not use the unit in the immediate surroundings of a laundry a bath a shower or a swimming pool.

Outdoor Unit Installation Position Selection

1. Select a location from which noise and outflow air emitted by unit will not inconvenience neighbors, animals, plants.
2. Select a location where there should be sufficient ventilation.
3. Select a location where there should be no obstructions cover the inlet and outlet vent.
4. The location should be able to withstand the full weight and vibration of the outdoor unit and permit safe installation.
5. Select a dry place, but do not expose under the direct sunlight or strong wind.
6. Make sure that the outdoor unit installation dimension should accord with installation dimension diagram, convenient for maintenance, repair.
7. The height difference of connecting the tubing within 5m, the length of connecting the tubing within 10m.
8. Select a place where it is out of reach for the children.
9. Select a place where will not block the passage and do not influence the city appearance.

Safety Requirements For Electric Appliances

1. The power supply should be used the rated voltage and AC exclusive circuit, the power cable diameter should be satisfied.
2. Don't drag the power cable emphatically.
3. It should be reliably earthed, and it should be connected to the special earth device, the installation work should be operated by the professional.
   The air switch must have the functions of magnetic tripping and heat tripping, in order to protect the short circuit and overloading.
4. The min. distance from the unit and combustive surface is 1.5m.
5. The appliance shall be installed in accordance with national wiring regulations.
6. An all-pole disconnection switch having a contact separation of at least 3mm in all poles should be connected in fixed wiring.

Note:

- Make sure that the Live wire or Zero line as well as the earth wire in the family power socket can not be wrong connected, there should be reliable and no short circuit in the diagram.
- wrong connection may cause fire.

Earthing requirements

1. Air conditioner is type I electric appliance, thus please do conduct reliable earthing measure.
2. The yellow-green two-color wire in air conditioner is earthing wire and cannot be used for other propose. It cannot be cut off and be fix it by screw, otherwise it would cause electric shock.
3. The earth resistance should accord to the National Criterion.
4. The user power must offer the reliable earthing terminal. Please don't connect the earthing wire with the following place:
   ① Tap water pipe. ② Gas pipe. ③ Contamination pipe.
   ④ Other places that professional personnel consider them unreliable.
5. The model and rating values for fuses according the silk print on fuse cover or related PCB board.

Install the rear panel

1.Always mount the rear panel horizontally. Due to the water tray of indoor unit has been adopted the both-way drainage design, the outlet of water tray should be adjusted slightly down when installing, that is taking the outlet of the water tray as the center of a circle, the included angle between the evaporator and level should be 0 or more, that is good for condensing water drainage.

2.Fix the rear panel on the wall with screws. (Where is pre-covered with plastic granula)

3.Be sure that the rear panel has been fixed firmly enough to withstand the weight of an adult of 60kg, further more, the weight should be evenly shared by each screw.

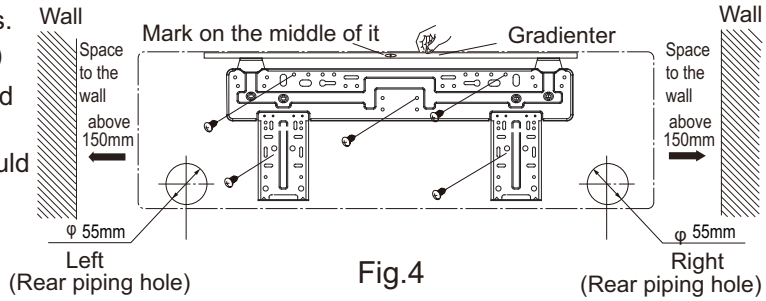
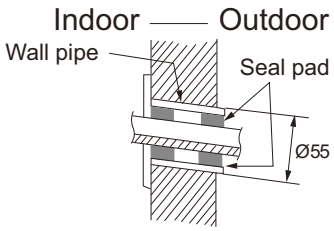


Fig.4

Install the piping hole

1.Make the piping hole (Φ55) in the wall at a slight downward slant to the outdoor side.

2.Insert the piping-hole sleeve into the hole to prevent the connection piping and wiring from being damaged when passing through the hole.

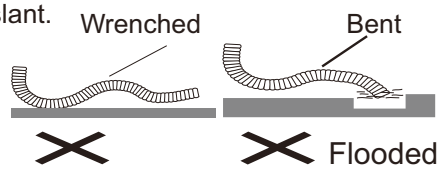


Install the water drainage pipe

1.For well draining, the drain hose should be placed at a downward slant.

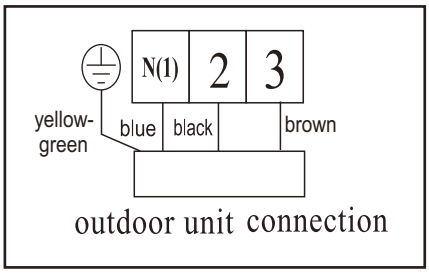
2.Do not wrench or bend the drain hose or flood its end by water.

3.When the long drainage hose passing through indoor, should wrap the insulation materials.



Connect indoor and outdoor electric wires

1.Open the surface panel.
2.Remove the wiring cover .
3.Route the power connection cord and signal control wire (for cooling and heating unit only) from the back of the indoor unit and pull it toward the front through the wiring hole for connection.
4.Connect the interconnection cord to the terminal block, and then fix the cord with cord anchorge.
5.Reassemble the clampand wiring cover.
6.Recover the surface panel.



NOTE:

When connecting the electric wire if the wire length is not enough, please contact with the authorized service shop to buy a exclusive electric wire that is long enough and the joint on the wire are not allowed.

- The electric wiring must be correctly connected, wrong connection may cause spare parts malfunction.
- Tighten the terminal screw in order to prevent loose.
- After tighten the screw, slight pull the wire and confirm whether is it firm or not.
- If the earth wire is wrong connection, that may cause electric shock.
- The cover plate must be fixed, and tighten the connection wire, if it is poor installed, that the dust, moisture may enter in or the connection terminal will be affected by outside force, and will cause fire or electric shock.

Install the indoor unit

- The piping can be lead out from right, right rear, left left rear.

1. When routing the piping and wiring from the left or right side of indoor unit, cut off the tailings from the chassis in necessary(Show in Fig.7)
   (1) Cut off the tailings 1 when routing the wiring only;
   (2) Cut off the tailings 1 and tailings 2 when routing both the wiring and piping.
2. Take out the piping from body case, wrap the piping electric wire, water pipe with tape and pull them through the piping hole (As show in Fig.8)
3. Hange the mounting slots of the indoor unit on the upper tabs of the rear panel and check if it is firm enough.(As show in Fig.9)
4. The height of the installed location should be 2.5m or more from the floor.

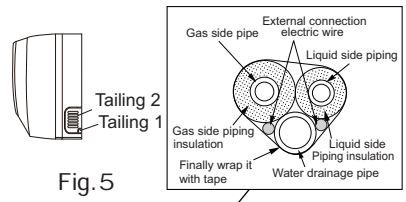


Fig.5

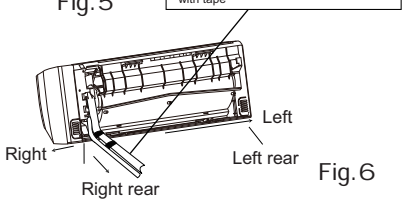
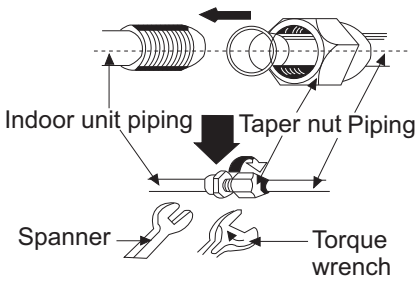


Fig.6

Fig.7

Install the connection pipe

1. Align the center of the piping flare with the relevant valve.
2. Screw in the flare nut by hand and then tighten the nut with spanner and torque wrench refer to the following:

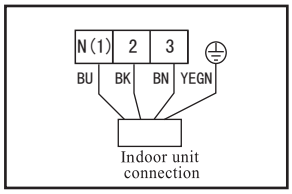


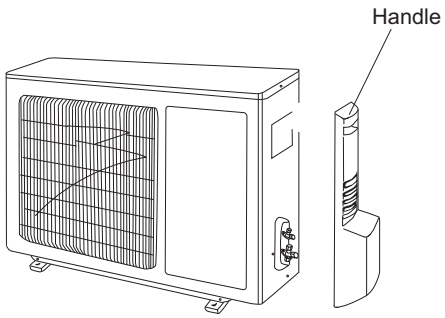
Hex nut diameter	Tightening torque (N·m)
Φ6	15～20
Φ 9.52	31～35
Φ 12	50～55
Φ 16	60～65
Φ 19	70～75

NOTE: Firstly connect the connection pipe to indoor unit, then to outdoor unit; pay attention to the piping bending, do not damage the connection pipe; the joint nut couldn't tighten too much, otherwise it may cause leakage.

Electric wiring

1. Disassemble the handle on the outdoor unit right side plate.
2. Take off cord anchorage. Connect and fix power connect cord (for cooling and heating unit,connect and fix power connect cord and signal control wire)to terminal block.
3. Fix the power connection cable with cord anchorage, (for cooling and heating unit, use the cord anchorage to fix the power connection cable and the signal control wire).
4. Ensure wire has been fixed well.
5. Install the handle.





NOTE:

- Wrong wiring may cause spare parts malfunction.
- After the cable fixed, make sure there should be a free space between the connection and connection and fixing place on the lead wire.

Air purging and leakage test

1. Connect charging hose of manifold valve to charge end of low pressure valve (both high/low pressure valves must be tightly shut).
2. Connect joint of charging hose to vacuum pump.
3. Fully open handle handle of Lo manifold valve.
4. Open the vacuum pump to evacuate. At the beginning, slightly loosen joint nut of low pressure valve to check if there is air coming inside. (If noise of vacuum pump has been changed, the reading of multimeter is 0) Then tighten the nut.
5. Keep evacuating for more than 15mins and make sure the reading of multi-meter is -1.0×10^5pa (-76cmHg).
6. Fully open high/low pressure valves.
7. Remove charging hose from charging end of low pressure valve.
8. Tighten bonnet of low-pressure valve. (As shown in Fig.10)

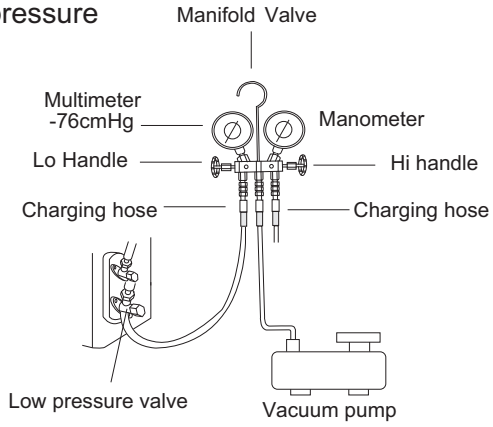
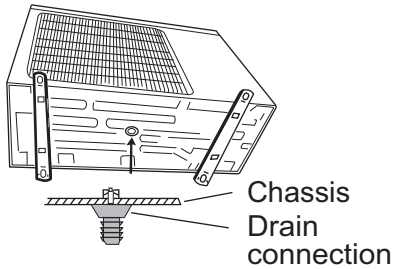


Fig.8

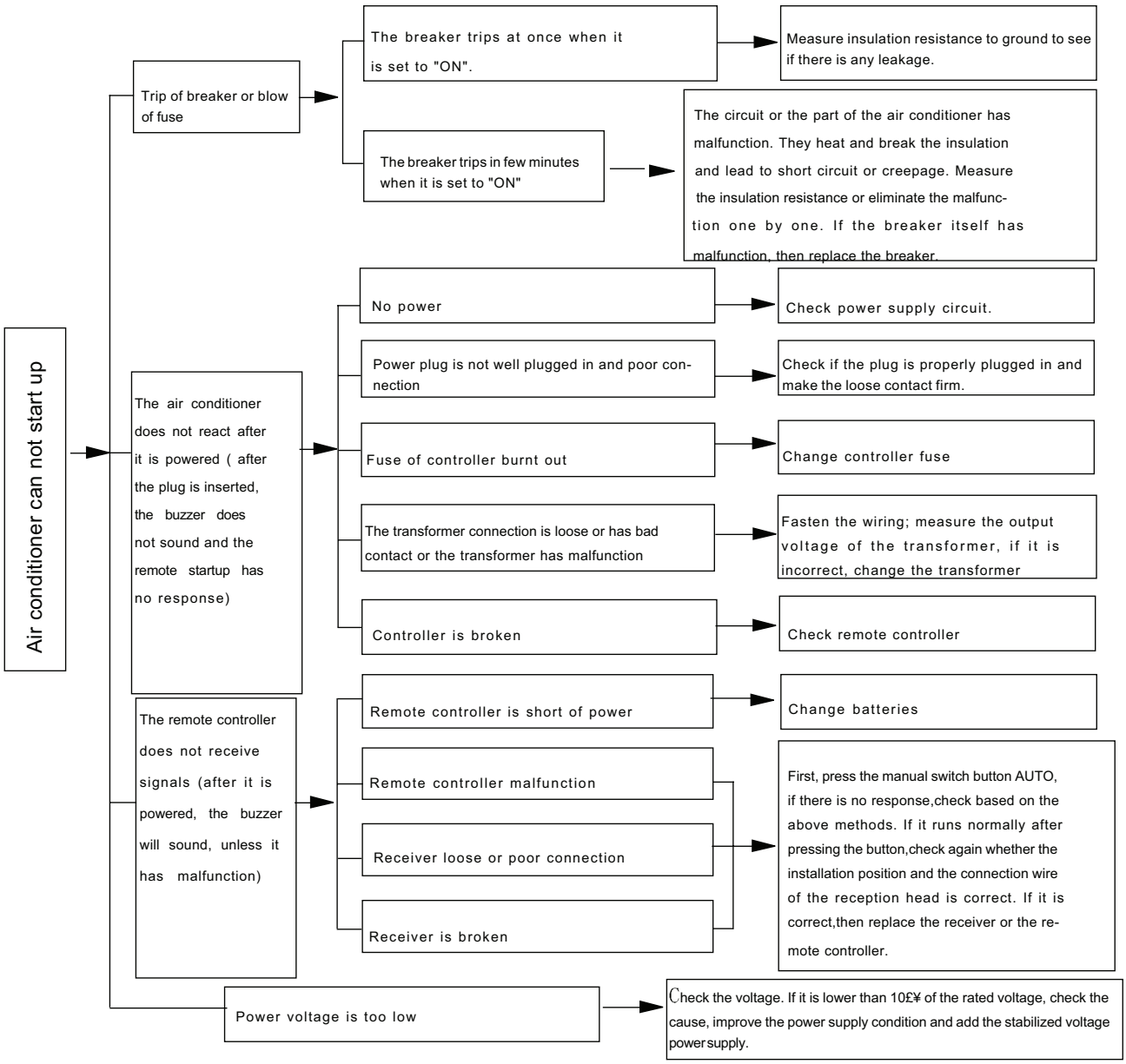
Condensate drainage of outdoor unit (no for cooling only)

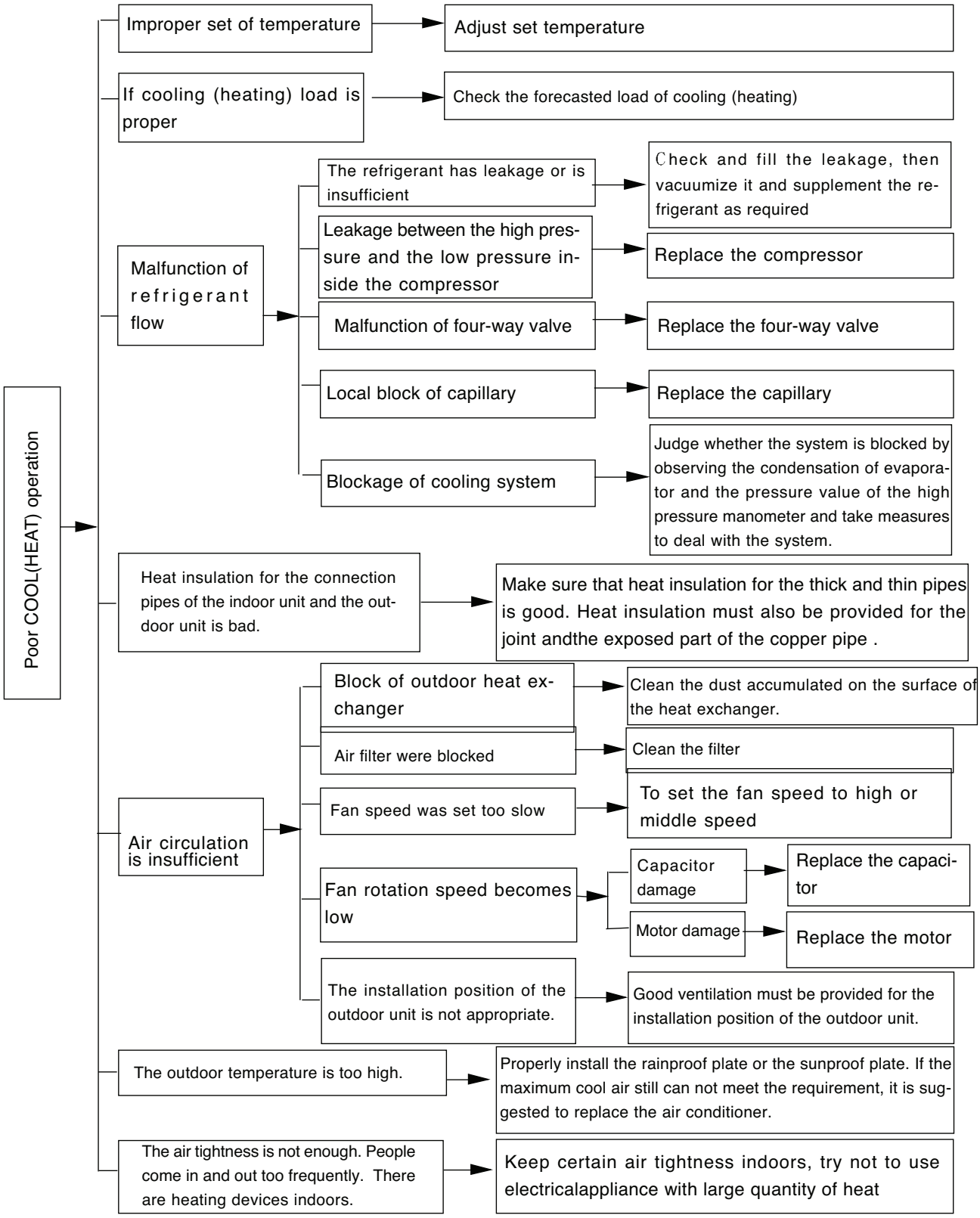
The condensate and defrosting water formd during heating in the outdoor unit can be properly discharged by drainage pipe .
Installation method:set the drain connection in Ø 25 hole of the chassis has been installed and then connect drainage pipe with drain nozzle,so that condensate and defrosting waer can be properly discharged

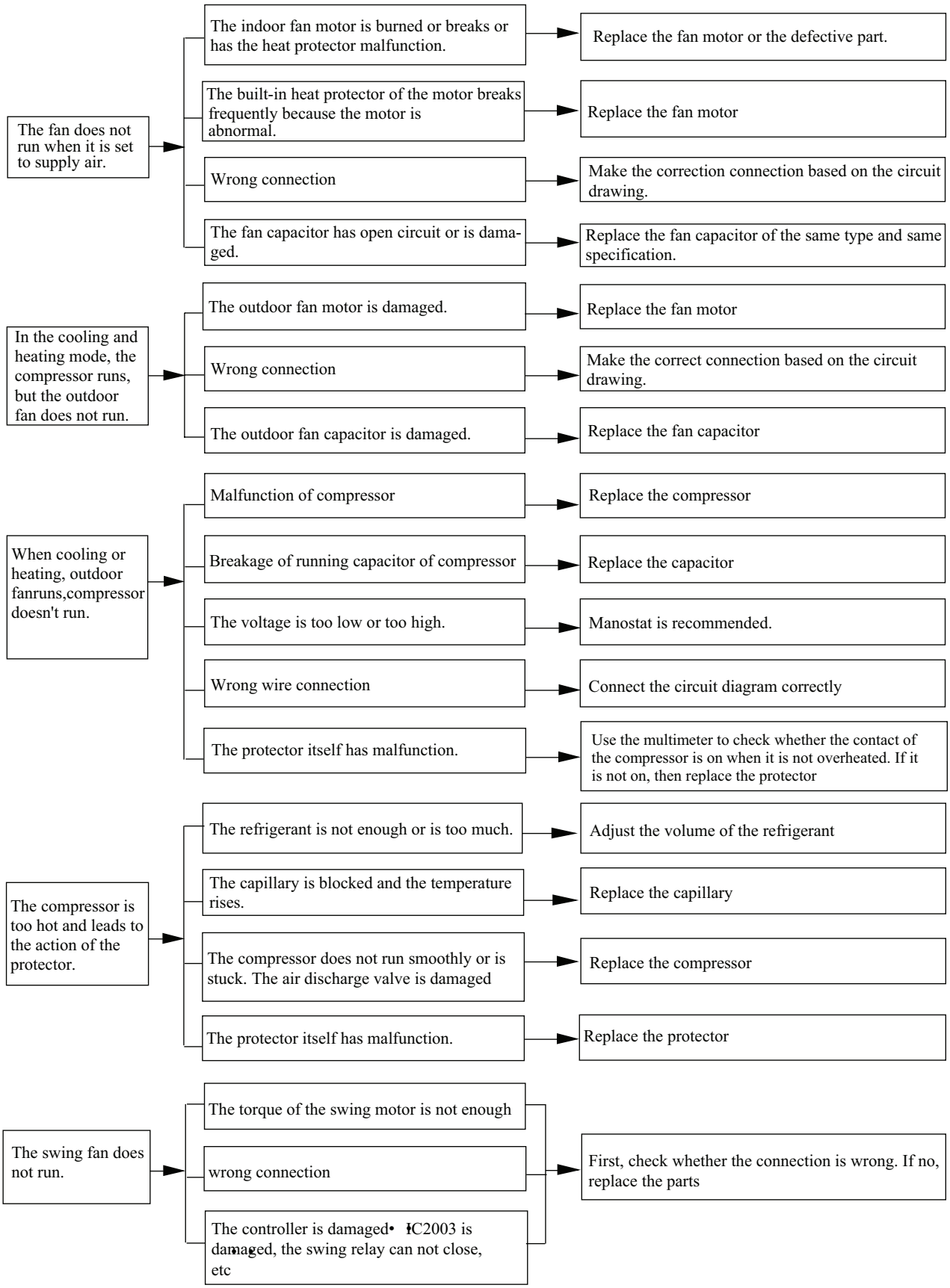


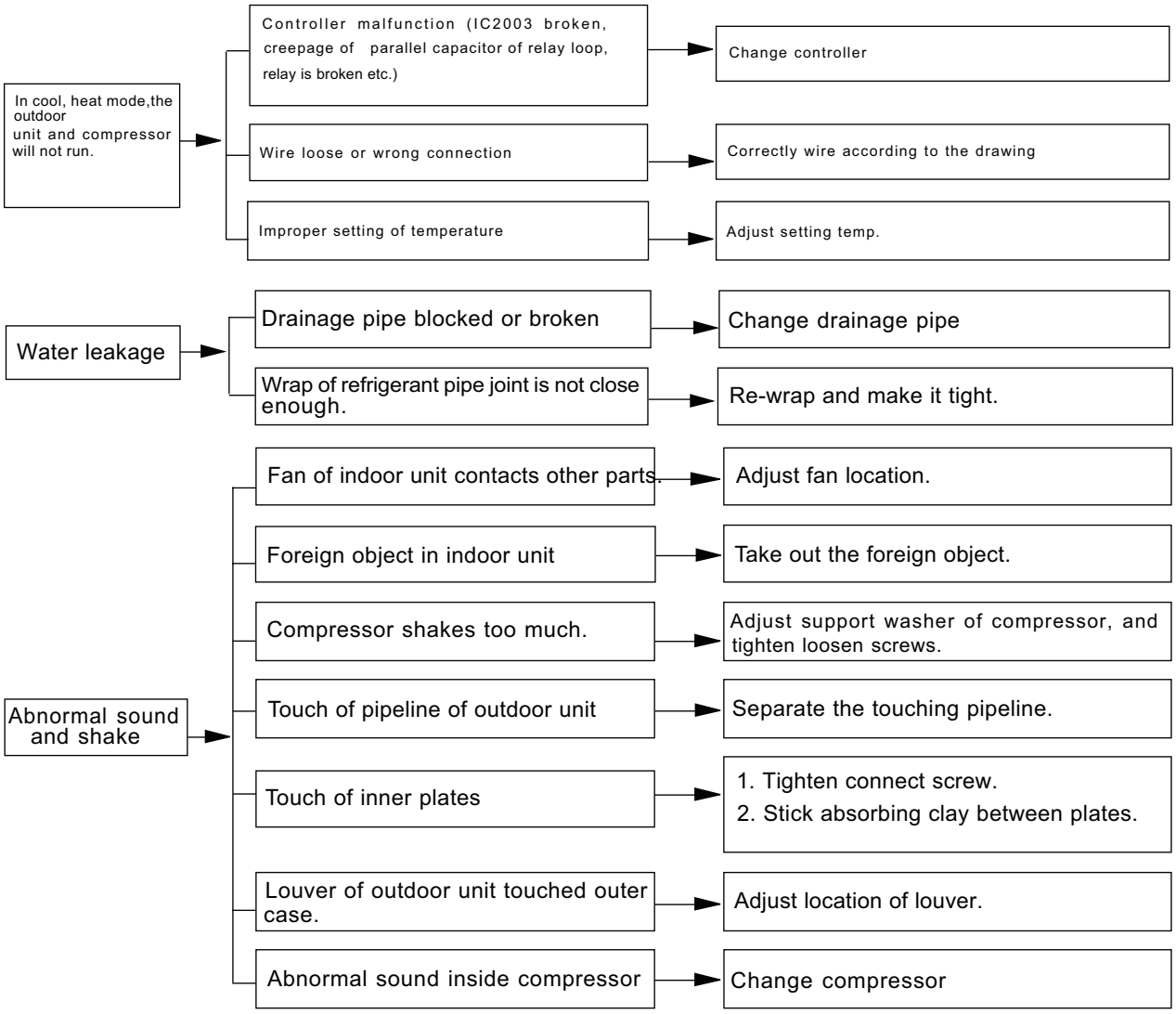
Troubleshooting Guide

Note: When replacing the controller, make sure insert the wire jumper into the new controller, otherwise the unit display C5




Poor COOL(HEAT) operation
Improper set of temperature
Adjust set temperature
If cooling (heating) load is proper
Check the forecasted load of cooling (heating)
Malfunction of refrigerant flow
The refrigerant has leakage or is insufficient
Check and fill the leakage, then vacuumize it and supplement the refrigerant as required
Leakage between the high pressure and the low pressure inside the compressor
Replace the compressor
Malfunction of four-way valve
Replace the four-way valve
Local block of capillary
Replace the capillary
Blockage of cooling system
Judge whether the system is blocked by observing the condensation of evaporator and the pressure value of the high pressure manometer and take measures to deal with the system.
Heat insulation for the connection pipes of the indoor unit and the outdoor unit is bad.
Make sure that heat insulation for the thick and thin pipes is good. Heat insulation must also be provided for the joint andthe exposed part of the copper pipe .
Air circulation is insufficient
Block of outdoor heat exchanger
Clean the dust accumulated on the surface of the heat exchanger.
Air filter were blocked
Clean the filter
Fan speed was set too slow
To set the fan speed to high or middle speed
Fan rotation speed becomes low
Capacitor damage
Replace the capacitor
Motor damage
Replace the motor
The installation position of the outdoor unit is not appropriate.
Good ventilation must be provided for the installation position of the outdoor unit.
The outdoor temperature is too high.
Properly install the rainproof plate or the sunproof plate. If the maximum cool air still can not meet the requirement, it is suggested to replace the air conditioner.
The air tightness is not enough. People come in and out too frequently. There are heating devices indoors.
Keep certain air tightness indoors, try not to use electricalappliance with large quantity of heat


The fan does not run when it is set to supply air.
The indoor fan motor is burned or breaks or has the heat protector malfunction.
Replace the fan motor or the defective part.
The built-in heat protector of the motor breaks frequently because the motor is abnormal.
Replace the fan motor
Wrong connection
Make the correction connection based on the circuit drawing.
The fan capacitor has open circuit or is damaged.
Replace the fan capacitor of the same type and same specification.
In the cooling and heating mode, the compressor runs, but the outdoor fan does not run.
The outdoor fan motor is damaged.
Replace the fan motor
Wrong connection
Make the correct connection based on the circuit drawing.
The outdoor fan capacitor is damaged.
Replace the fan capacitor
When cooling or heating, outdoor fanruns,compressor doesn't run.
Malfunction of compressor
Replace the compressor
Breakage of running capacitor of compressor
Replace the capacitor
The voltage is too low or too high.
Manostat is recommended.
Wrong wire connection
Connect the circuit diagram correctly
The protector itself has malfunction.
Use the multimeter to check whether the contact of the compressor is on when it is not overheated. If it is not on, then replace the protector
The compressor is too hot and leads to the action of the protector.
The refrigerant is not enough or is too much.
Adjust the volume of the refrigerant
The capillary is blocked and the temperature rises.
Replace the capillary
The compressor does not run smoothly or is stuck. The air discharge valve is damaged
Replace the compressor
The protector itself has malfunction.
Replace the protector
The swing fan does not run.
The torque of the swing motor is not enough
wrong connection
The controller is damaged• ıC2003 is damaged, the swing relay can not close, etc
First, check whether the connection is wrong. If no, replace the parts

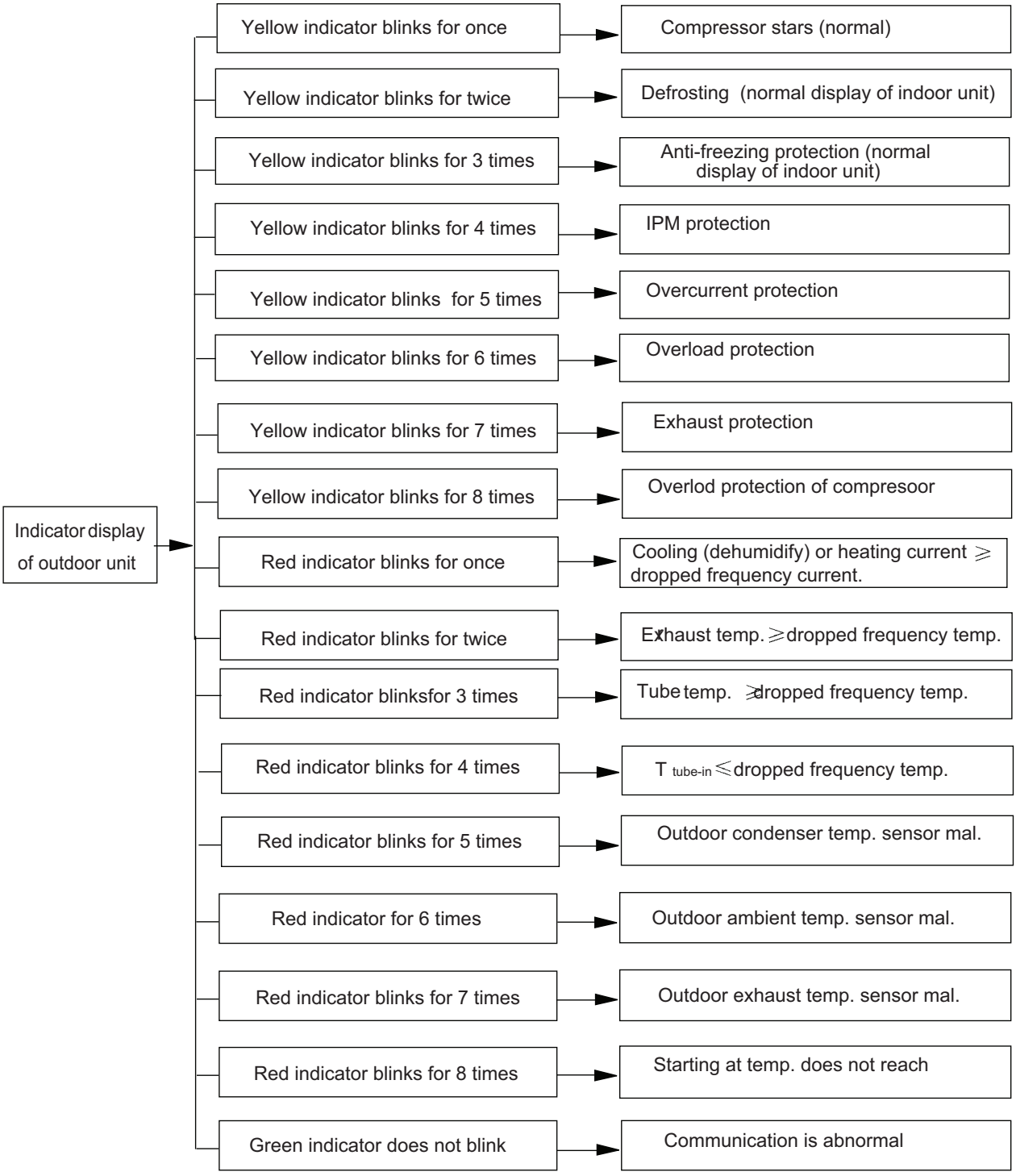

In cool, heat mode,the outdoor unit and compressor will not run.
Controller malfunction (IC2003 broken, creepage of parallel capacitor of relay loop, relay is broken etc.)
Change controller
Wire loose or wrong connection
Correctly wire according to the drawing
Improper setting of temperature
Adjust setting temp.
Water leakage
Drainage pipe blocked or broken
Change drainage pipe
Wrap of refrigerant pipe joint is not close enough.
Re-wrap and make it tight.
Abnormal sound and shake
Fan of indoor unit contacts other parts.
Adjust fan location.
Foreign object in indoor unit
Take out the foreign object.
Compressor shakes too much.
Adjust support washer of compressor, and tighten loosen screws.
Touch of pipeline of outdoor unit
Separate the touching pipeline.
Touch of inner plates
1. Tighten connect screw.
2. Stick absorbing clay between plates.
Louver of outdoor unit touched outer case.
Adjust location of louver.
Abnormal sound inside compressor
Change compressor

Flashing LED of Indoor/Outdoor Unit and Primary Judgement

	Name of running status	Yellow light	Red light	Green light	Indoor unit display
1	Compressor start	Blink once			
2	Defrosting	Blink twice			H1
3	Anti-freezing protection	Blink three times			E2
4	IPM protection	Blink four times			H5
5	Overcurrent protection	Blink five times			E5
6	Overload protection	Blink six times			H4
7	Air exhaust protection	Blink seven times			E4
8	Overload protection	Blink eight times			H3
9	Limited frequency (current)		Blink once		
10	Limited frequency (Air exhaust)		Blink twice		
11	Limited frequency (overload)		Blink three times		
12	Limited frequency (anti-freezing)		Blink four times		
13	Outdoor unit ambient sensor malfunction		Blink five times		F3
14	Outdoor unit tube temp. sensor malfunction		Blink six times		F4
15	Outdoor air exhaust sensor malfunction		Blink seven times		F5
16	Achieve the temperature of unit startsup		Blink eight times		
17	Communication is normal			Blink continuously	
18	Communication malfunction			OFF	E6
19	Overload sensor malfunction		Blink nine times		H3
20	Low voltage protection	Blink twelve times			PL
21	High voltage protection	Blink thirteen times			PH
22	Indoor ambient sensor malfunction				F1
23	Indoor tube temperature sensor malfunction				F2
24	Normal cooling or norminal heating				P1
25	Max. cooling or max. heating				P2
26	Interim cooling or interim heating				P3
27	Min. cooling or Min. heating				P4

Malfunction Display

If malfunction occurs,corresponding code will display and the unit will resume normal until protection or malfunction disappears.



Analysis or processing of some of the malfunction display:

1. Compressor discharge protection

   Possible reasons: shortage of refrigerant; blockage of air filter; poor ventilation or air flow short pass for condenser; the system has noncondensing gas (such as air, water etc.); blockage of capillary assy (including filter); leakage inside four-way valve causes incorrect operation; malfunction of compressor; malfunction of protection relay; malfunction of discharge sensor; outdoor temperature too high.
   Processing method: refer to the malfunction analysis in the above section.

2. Low voltage overcurrent protection

   Possible reason: Sudden drop of supply voltage.

3. Communication malfunction

   Processing method: Check if communication signal cable is connected reliably.

4. Sensor open or short circuit

   Processing method: Check whether sensor is normal, connected with the corresponding position on the controller and if damage of lead wire is found.

5. Compressor overload protection

   Possible reasons: insufficient or too much refrigerant; blockage of capillary and increase of suction temp.; improper running of compressor, burning in or stuck of bearing, damage of discharge valve; malfunction of protector.

   Processing method: adjust refrigerant amount; replace the capillary; replace the compressor; use universal meter to check if the contactor of compressor is fine when it is not overheated, if not replace the protector.

6. System malfunction

   i.e. overload protection. When tube temperature (Check the temperature of outdoor heat exchanger when cooling and check the temperature of indoor heat exchanger when heating) is too high, protection will be activated.

   Possible reasons: Outdoor temperature is too high when cooling; insufficient outdoor air circulation; refrigerant flow malfunction.
   please refer to the malfunction analysis in the previous section for handling method .

7. IPM module protection

   Processing method:Once the module malfunction happens,if it persists for a long time and can not be self- canceled, cut off the power and turn off the unit,and then re-energize the unit again after about 10 min.After repeating the procedure for sever times, if the malfunction still exists,replace the module.

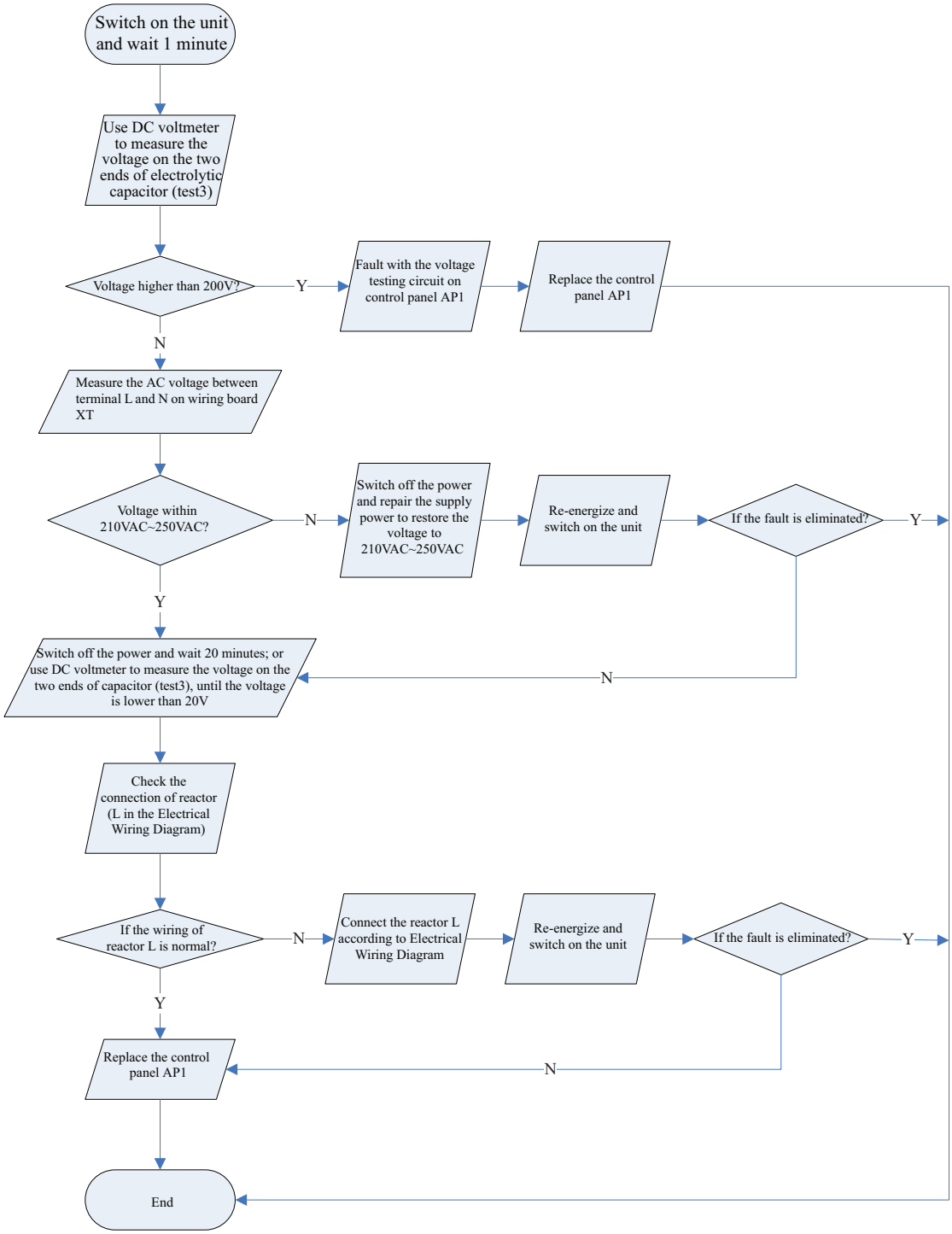
3、How to Check simply the main part

(1) Capacitor charge fault (Fault with outdoor unit) (AP1 below refers to the outdoor control panel)

Main Check Points:

- Use AC voltmeter to check if the voltage between terminal L and N on the wiring board is within 210VAC~240VAC.
- If the reactor (L) is correctly connected? If the connection is loose or fallen? If the reactor (L) is damaged?

Fault diagnosis process:

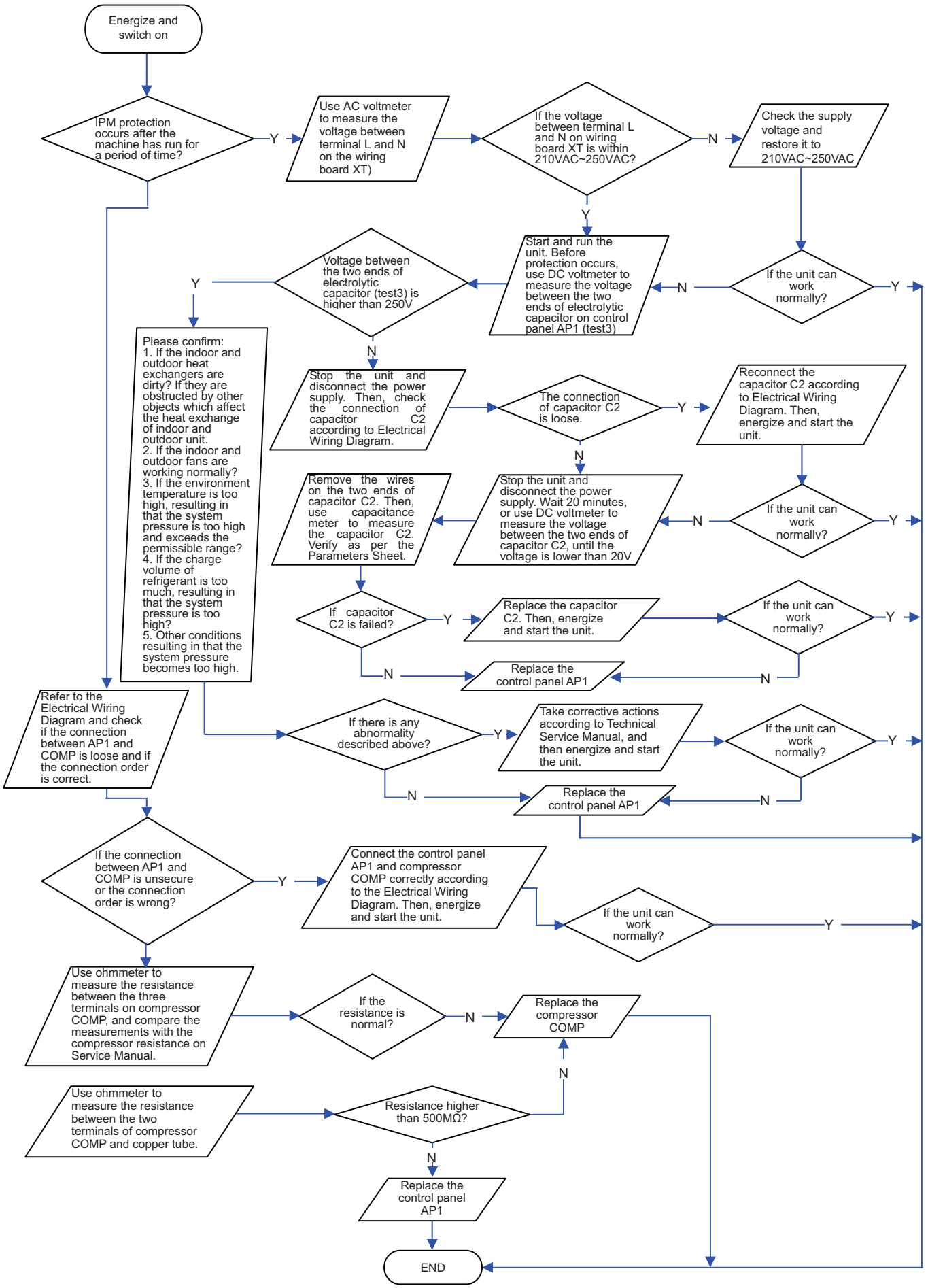


(2) IPM Protection, Out-of-step Fault, Compressor Phase Overcurrent (AP1 below refers to the outdoor control panel)

Mainly detect:

- If the connection between control panel AP1 and compressor COMP is secure? If loose? If the connection is in correct order?
- If the voltage input of the machine is within normal range? (Use AC voltmeter to measure the voltage between terminal L and N on the wiring board XT)
- If the compressor coil resistance is normal? If the insulation of compressor coil against the copper tube is in good condition?
- If the working loads of the machine are too high? If the radiation is good?
- If the charge volume of refrigerant is correct?

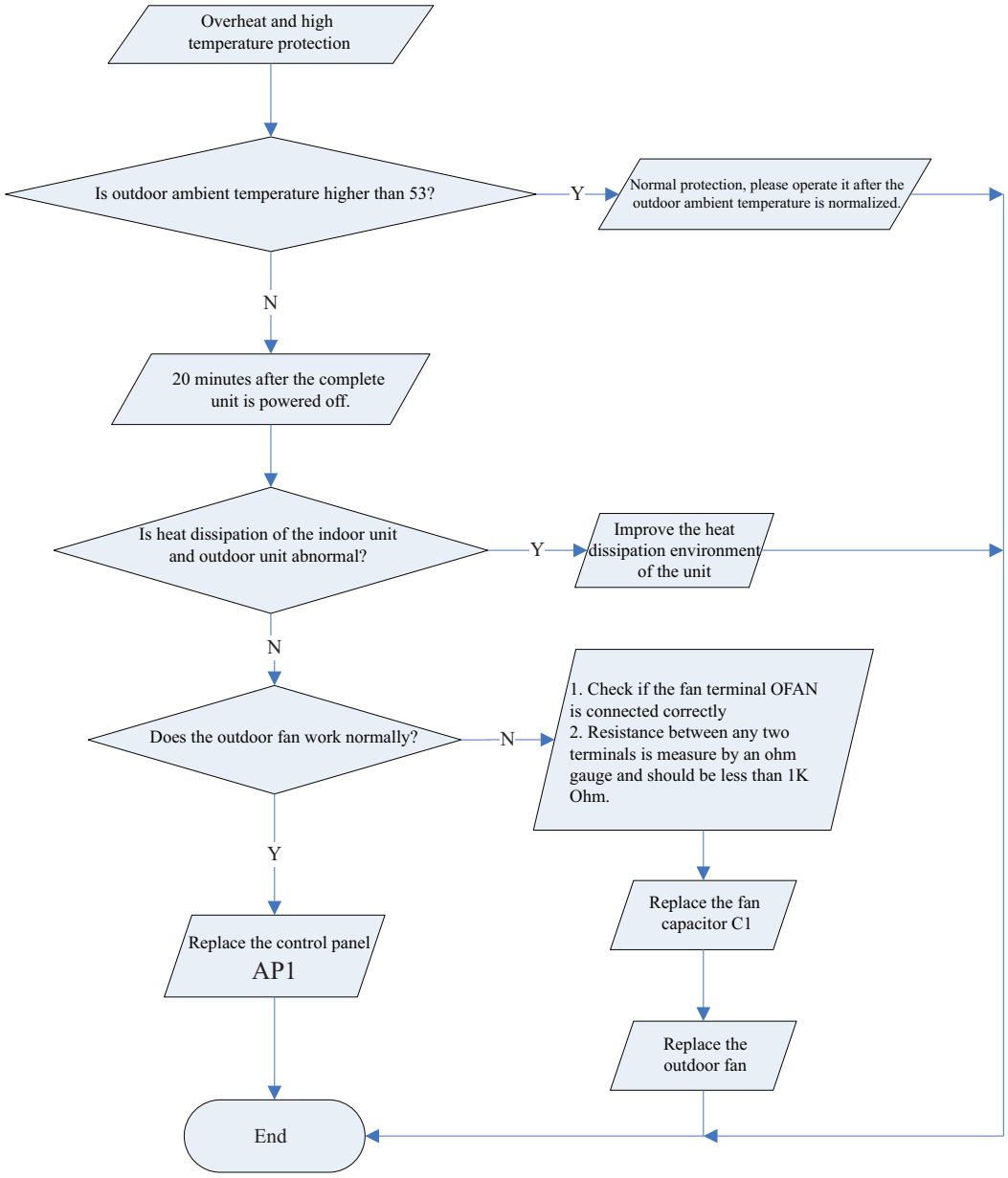
Fault diagnosis process:


Energize and switch on
IPM protection occurs after the machine has run for a period of time?
Y
Use AC voltmeter to measure the voltage between terminal L and N on the wiring board XT)
If the voltage between terminal L and N on wiring board XT is within 210VAC~250VAC?
N
Check the supply voltage and restore it to 210VAC~250VAC
Y
Start and run the unit. Before protection occurs, use DC voltmeter to measure the voltage between the two ends of electrolytic capacitor on control panel AP1 (test3)
N
If the unit can work normally?
Y
Voltage between the two ends of electrolytic capacitor (test3) is higher than 250V
Y
N
Please confirm:
1. If the indoor and outdoor heat exchangers are dirty? If they are obstructed by other objects which affect the heat exchange of indoor and outdoor unit.
2. If the indoor and outdoor fans are working normally?
3. If the environment temperature is too high, resulting in that the system pressure is too high and exceeds the permissible range?
4. If the charge volume of refrigerant is too much, resulting in that the system pressure is too high?
5. Other conditions resulting in that the system pressure becomes too high.
Stop the unit and disconnect the power supply. Then, check the connection of capacitor C2 according to Electrical Wiring Diagram.
The connection of capacitor C2 is loose.
Y
Reconnect the capacitor C2 according to Electrical Wiring Diagram. Then, energize and start the unit.
N
Stop the unit and disconnect the power supply. Wait 20 minutes, or use DC voltmeter to measure the voltage between the two ends of capacitor C2, until the voltage is lower than 20V
N
If the unit can work normally?
Y
Remove the wires on the two ends of capacitor C2. Then, use capacitance meter to measure the capacitor C2. Verify as per the Parameters Sheet.
If capacitor C2 is failed?
Y
Replace the capacitor C2. Then, energize and start the unit.
If the unit can work normally?
Y
N
Replace the control panel AP1
N
Refer to the Electrical Wiring Diagram and check if the connection between AP1 and COMP is loose and if the connection order is correct.
If there is any abnormality described above?
Y
Take corrective actions according to Technical Service Manual, and then energize and start the unit.
If the unit can work normally?
Y
N
Replace the control panel AP1
N
If the connection between AP1 and COMP is unsecure or the connection order is wrong?
Y
Connect the control panel AP1 and compressor COMP correctly according to the Electrical Wiring Diagram. Then, energize and start the unit.
If the unit can work normally?
Y
Use ohmmeter to measure the resistance between the three terminals on compressor COMP, and compare the measurements with the compressor resistance on Service Manual.
If the resistance is normal?
N
Replace the compressor COMP
N
Use ohmmeter to measure the resistance between the two terminals of compressor COMP and copper tube.
Resistance higher than 500MΩ?
N
Replace the control panel AP1
END

（3）High temperature and overload protection diagnosis (AP1 hereinafter refers to the control board of the outdoor unit)

Mainly detect:

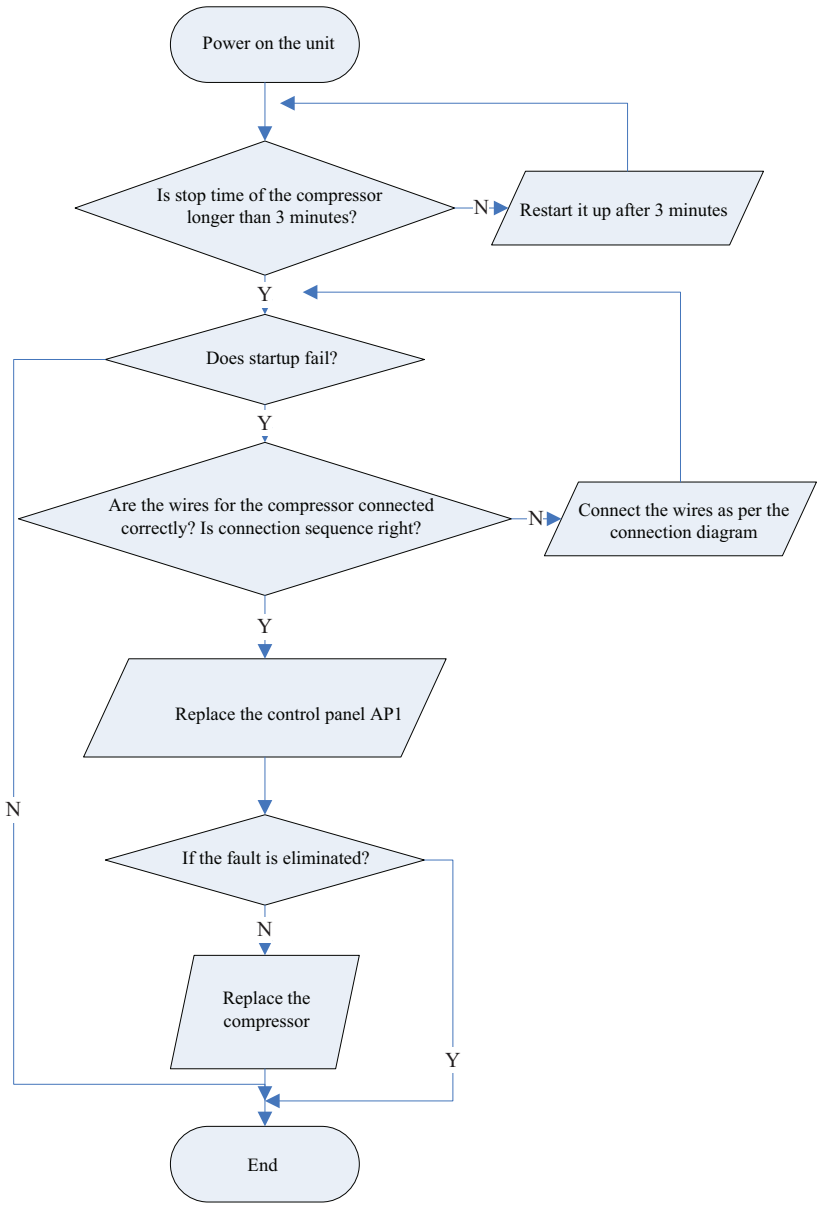
- Is outdoor ambient temperature in normal range?
- Are the outdoor and indoor fans operating normally?
- Is the heat dissipation environment inside and outside the unit is good?



(4) Fail for start up (following AP1 for outdoor unit control board)

Mainly detect:

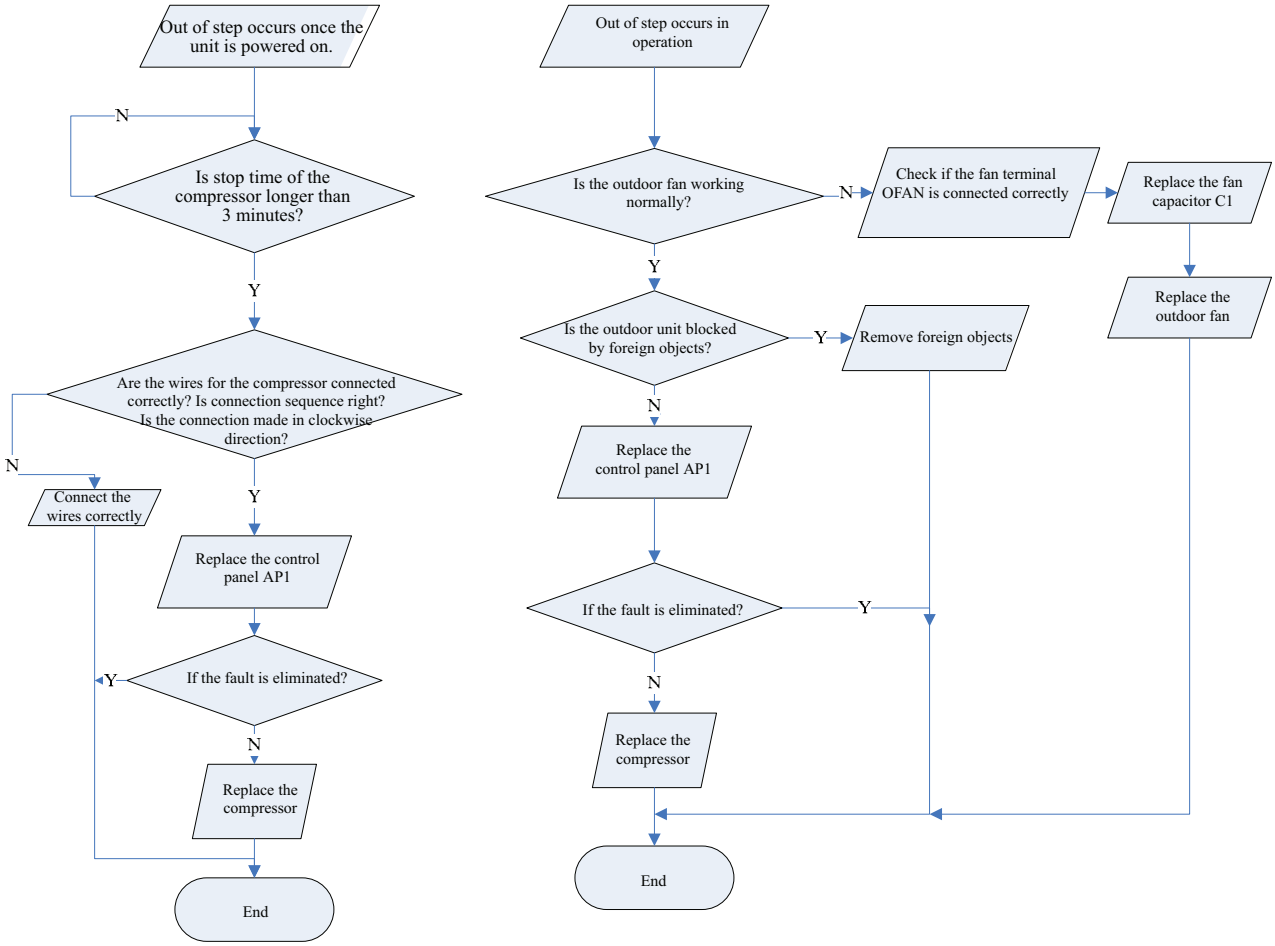
- Whether the compressor wiring is connected correct?
- Is time for compressor stopping enough?
- Is compressor broken?



(5) Out of step diagnosis for the compressor (AP1 hereinafter refers to the control board of the outdoor unit)

Mainly detect:

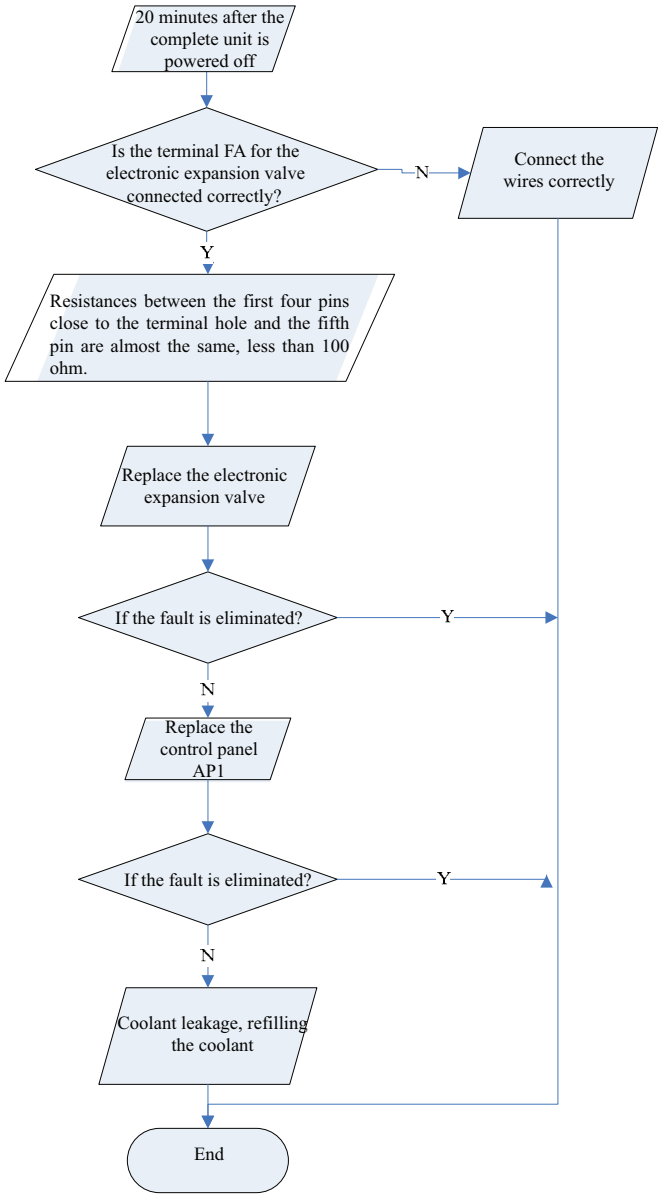
- Whether the unit voltage is too high?
- Whether the work voltage is too low?



(6)Overload and air exhaust malfunction detect (following AP1 for outdoor unit control board)

Mainly detect:

- Wether the electronic expansion valve is connected well or not? Is electronic expansion valve damaged?
- Is refrigerant leaked?

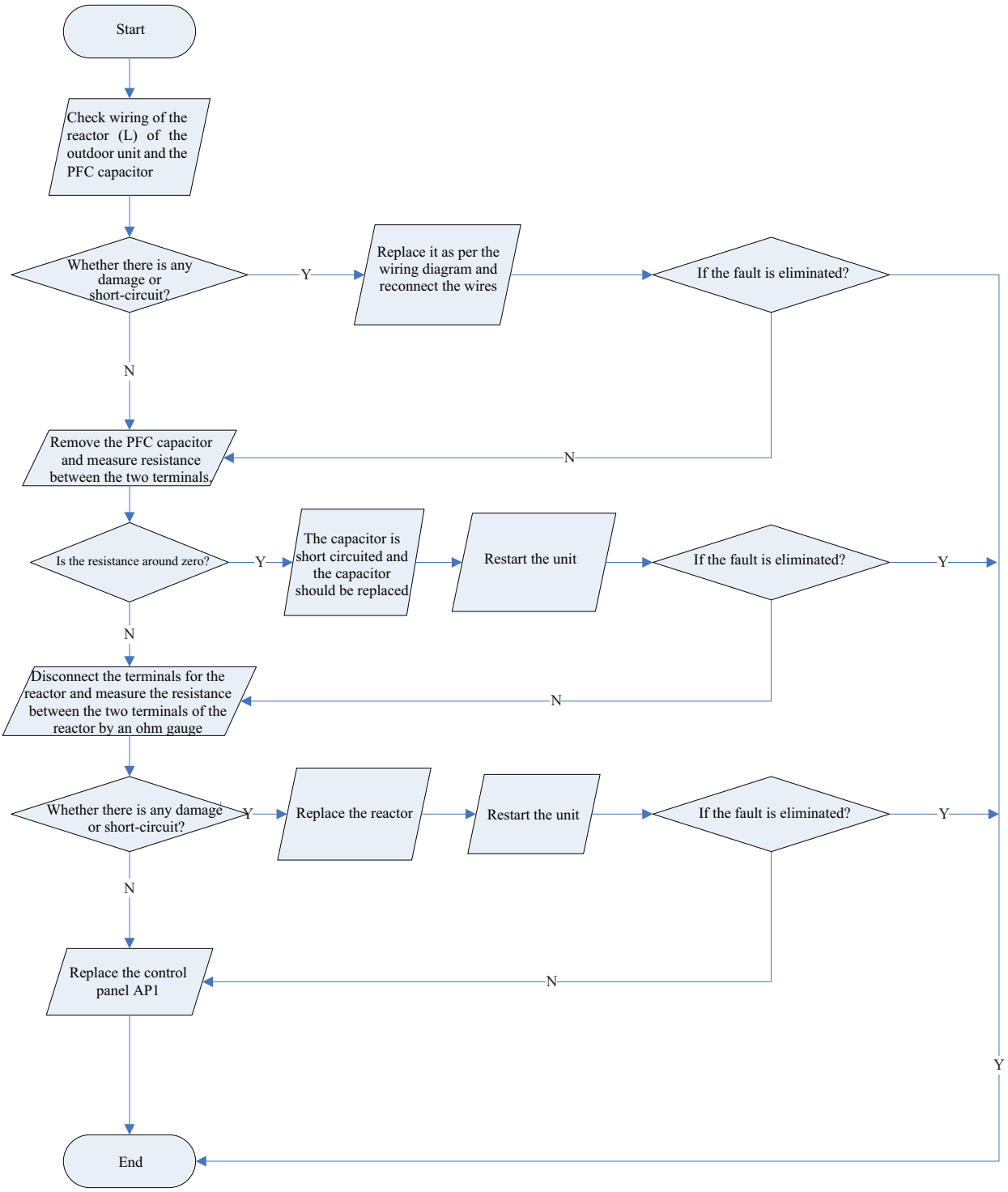


（7）Power factor correction (PFC) fault (a fault of outdoor unit) (AP1 hereinafter refers to the control board of the outdoor unit)

Mainly detect:

- Check if the reactor (L) of the outdoor unit and the PFC capacitor are broken

The failure diagnosis process is as follows:

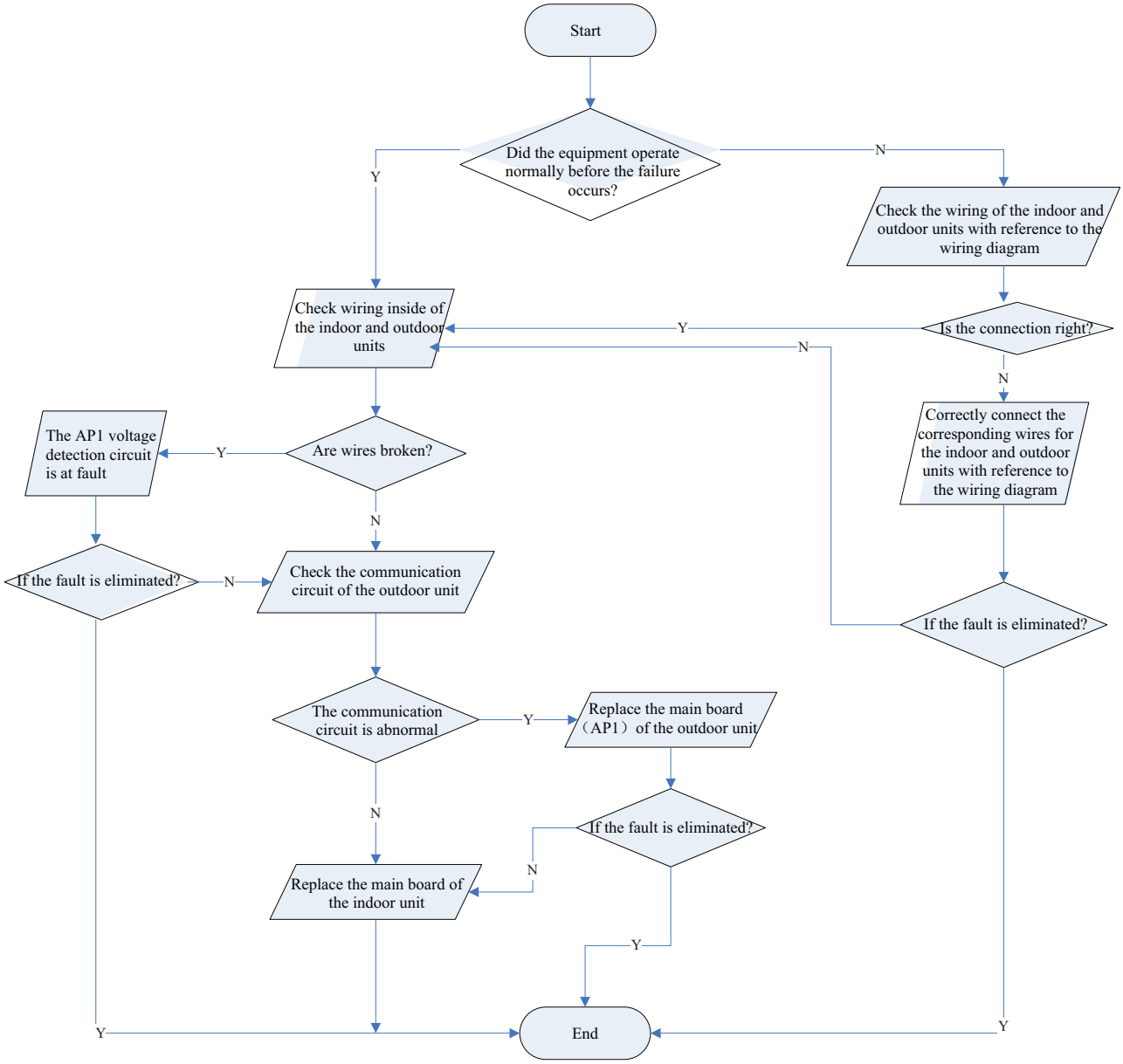


(8) Communication malfunction: (following AP1 for outdoor unit control board)

Mainly detect:

- Detect the indoor and outdoor units connection wire and indoor and outdoor units inside wiring is connect well or not, if is there any damage?
- Is there any damage for the indoor unit mainboard communication circuit? Is communication circuit damaged?

The flow chart for malfunction detect:



Appendix 1: form for indoor/outdoor unit's ambient sensor numerical value of resistance

Temp.（℃）	Resistance（kΩ）	Temp.（℃）	Resistance（kΩ）	Temp.（℃）	Resistance（kΩ）	Temp（℃）	Resistance（kΩ）
-19	138.100	20	18.750	59	3.848	98	1.071
-18	128.600	21	17.930	60	3.711	99	1.039
-17	121.600	22	17.140	61	3.579	100	1.009
-16	115.000	23	16.390	62	3.454	101	0.980
-15	108.700	24	15.680	63	3.333	102	0.952
-14	102.900	25	15.000	64	3.217	103	0.925
-13	97.400	26	14.360	65	3.105	104	0.898
-12	92.220	27	13.740	66	2.998	105	0.873
-11	87.350	28	13.160	67	2.896	106	0.848
-10	82.750	29	12.600	68	2.797	107	0.825
-9	78.430	30	12.070	69	2.702	108	0.802
-8	74.350	31	11.570	70	2.611	109	0.779
-7	70.500	32	11.090	71	2.523	110	0.758
-6	66.880	33	10.630	72	2.439	111	0.737
-5	63.460	34	10.200	73	2.358	112	0.717
-4	60.230	35	9.779	74	2.280	113	0.697
-3	57.180	36	9.382	75	2.206	114	0.678
-2	54.310	37	9.003	76	2.133	115	0.660
-1	51.590	38	8.642	77	2.064	116	0.642
0	49.020	39	8.297	78	1.997	117	0.625
1	46.600	40	7.967	79	1.933	118	0.608
2	44.310	41	7.653	80	1.871	119	0.592
3	42.140	42	7.352	81	1.811	120	0.577
4	40.090	43	7.065	82	1.754	121	0.561
5	38.150	44	6.791	83	1.699	122	0.547
6	36.320	45	6.529	84	1.645	123	0.532
7	34.580	46	6.278	85	1.594	124	0.519
8	32.940	47	6.038	86	1.544	125	0.505
9	31.380	48	5.809	87	1.497	126	0.492
10	29.900	49	5.589	88	1.451	127	0.480
11	28.510	50	5.379	89	1.408	128	0.467
12	27.180	51	5.197	90	1.363	129	0.456
13	25.920	52	4.986	91	1.322	130	0.444
14	24.730	53	4.802	92	1.282	131	0.433
15	23.600	54	4.625	93	1.244	132	0.422
16	22.530	55	4.456	94	1.207	133	0.412
17	21.510	56	4.294	95	1.171	134	0.401
18	20.540	57	4.139	96	1.136	135	0.391
19	19.630	58	3.990	97	1.103	136	0.382

Appendix 2: form for indoor/outdoor unit's tube temperature sensor numerical value of resistance

Temp (℃)	Resistance (kΩ)	Temp (℃)	Resistance (kΩ)	Temp (℃)	Resistance (kΩ)	Temp (℃)	Resistance (kΩ)
-19	181.400	20	25.010	59	5.130	98	1.427
-18	171.400	21	23.900	60	4.948	99	1.386
-17	162.100	22	22.850	61	4.773	100	1.346
-16	153.300	23	21.850	62	4.605	101	1.307
-15	145.000	24	20.900	63	4.443	102	1.269
-14	137.200	25	20.000	64	4.289	103	1.233
-13	129.900	26	19.140	65	4.140	104	1.198
-12	123.000	27	18.130	66	3.998	105	1.164
-11	116.500	28	17.550	67	3.861	106	1.131
-10	110.300	29	16.800	68	3.729	107	1.099
-9	104.600	30	16.100	69	3.603	108	1.069
-8	99.130	31	15.430	70	3.481	109	1.039
-7	94.000	32	14.790	71	3.364	110	1.010
-6	89.170	33	14.180	72	3.252	111	0.983
-5	84.610	34	13.590	73	3.144	112	0.956
-4	80.310	35	13.040	74	3.040	113	0.930
-3	76.240	36	12.510	75	2.940	114	0.904
-2	72.410	37	12.000	76	2.844	115	0.880
-1	68.790	38	11.520	77	2.752	116	0.856
0	65.370	39	11.060	78	2.663	117	0.833
1	62.130	40	10.620	79	2.577	118	0.811
2	59.080	41	10.200	80	2.495	119	0.770
3	56.190	42	9.803	81	2.415	120	0.769
4	53.460	43	9.420	82	2.339	121	0.746
5	50.870	44	9.054	83	2.265	122	0.729
6	48.420	45	8.705	84	2.194	123	0.710
7	46.110	46	8.370	85	2.125	124	0.692
8	43.920	47	8.051	86	2.059	125	0.674
9	41.840	48	7.745	87	1.996	126	0.658
10	39.870	49	7.453	88	1.934	127	0.640
11	38.010	50	7.173	89	1.875	128	0.623
12	36.240	51	6.905	90	1.818	129	0.607
13	34.570	52	6.648	91	1.736	130	0.592
14	32.980	53	6.403	92	1.710	131	0.577
15	31.470	54	6.167	93	1.658	132	0.563
16	30.040	55	5.942	94	1.609	133	0.549
17	28.680	56	5.726	95	1.561	134	0.535
18	27.390	57	5.519	96	1.515	135	0.521
19	26.170	58	5.320	97	1.470	136	0.509

Appendix 3: form for indoor/outdoor unit's air exhaust temperature sensor numerical value of resistance

Temp.(℃)	Resistance(kΩ)	Temp.(℃)	Resistance(kΩ)	Temp.(℃)	Resistance(kΩ)	Temp(℃)	Resistance(kΩ)
-29	853.500	10	98.000	49	18.340	88	4.754
-28	799.800	11	93.420	50	17.650	89	4.609
-27	750.000	12	89.070	51	16.990	90	4.469
-26	703.800	13	84.950	52	16.360	91	4.334
-25	660.800	14	81.050	53	15.750	92	4.204
-24	620.800	15	77.350	54	15.170	93	4.079
-23	580.600	16	73.830	55	14.620	94	3.958
-22	548.900	17	70.500	56	14.090	95	3.841
-21	516.600	18	67.340	57	13.580	96	3.728
-20	486.500	19	64.330	58	13.090	97	3.619
-19	458.300	20	61.480	59	12.620	98	3.514
-18	432.000	21	58.770	60	12.170	99	3.413
-17	407.400	22	56.190	61	11.740	100	3.315
-16	384.500	23	53.740	62	11.320	101	3.220
-15	362.900	24	51.410	63	10.930	102	3.129
-14	342.800	25	49.190	64	10.540	103	3.040
-13	323.900	26	47.080	65	10.180	104	2.955
-12	306.200	27	45.070	66	9.827	105	2.872
-11	289.600	28	43.160	67	9.489	106	2.792
-10	274.000	29	41.340	68	9.165	107	2.715
-9	259.300	30	39.610	69	8.854	108	2.640
-8	245.600	31	37.960	70	8.555	109	2.568
-7	232.600	32	36.380	71	8.268	110	2.498
-6	220.500	33	34.880	72	7.991	111	2.431
-5	209.000	34	33.450	73	7.726	112	2.365
-4	198.300	35	32.090	74	7.470	113	2.302
-3	199.100	36	30.790	75	7.224	114	2.241
-2	178.500	37	29.540	76	6.998	115	2.182
-1	169.500	38	28.360	77	6.761	116	2.124
0	161.000	39	27.230	78	6.542	117	2.069
1	153.000	40	26.150	79	6.331	118	2.015
2	145.400	41	25.110	80	6.129	119	1.963
3	138.300	42	24.130	81	5.933	120	1.912
4	131.500	43	23.190	82	5.746	121	1.863
5	125.100	44	22.290	83	5.565	122	1.816
6	119.100	45	21.430	84	5.390	123	1.770
7	113.400	46	20.600	85	5.222	124	1.725
8	108.000	47	19.810	86	5.060	125	1.682
9	102.800	48	19.060	87	4.904	126	1.640

Disassembly

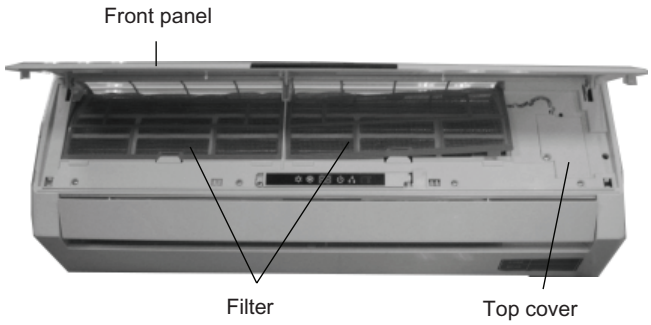
Indoor Unit

⚠ WARNING

Disconnect the unit from power supply before making any checks.
Be sure the power switch is set to “OFF”.

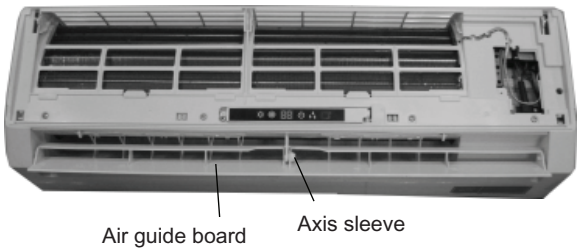
1.Disassemble the front panel

Open the front panel, slightly press the both sides of rotating axial of the panel, to make the rotating axial out of groove, can take down the front panel.
To push the filter forward, to make the both clasps loosen, can pull out off the filter.
Screw off one screw from the top cover, can take down it.



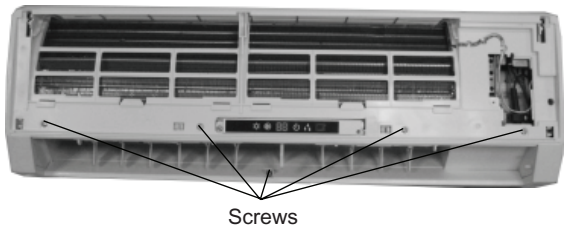
2.Disassemble the air guide louver

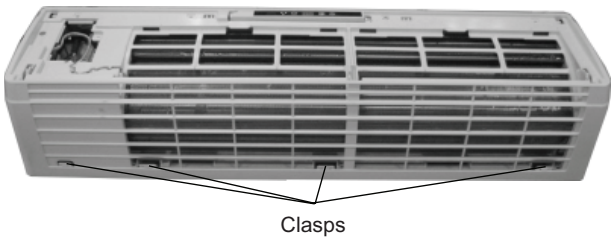
To make the axis sleeve out of the middle of left air guide louver, hold both sides of air guide louver, slightly press the middle part then can disassemble the air guide louver.



3.Disassemble the front case

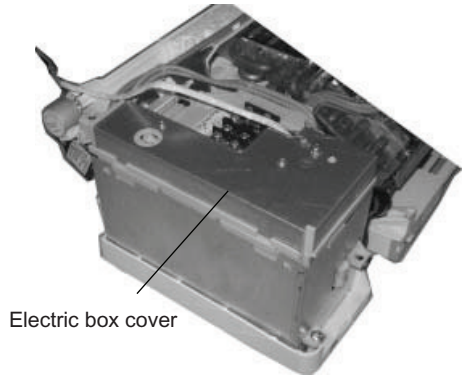
Screw off 7pcs screw from fixing front case, loosen the clasps of rear side, lift it up, can disassemble the front case.





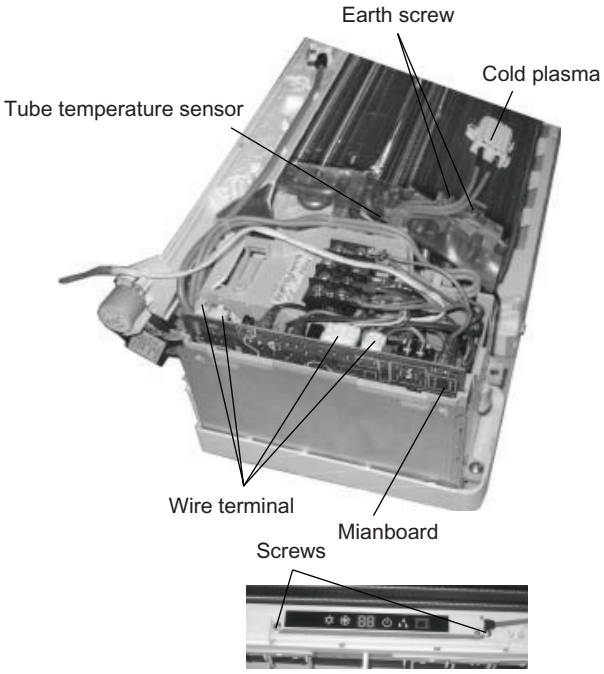
4.Disassemble the electric box cover

Slightly press the electric box cover to make the clasps out take down the ambient sensor, can take down the electrric box cover.



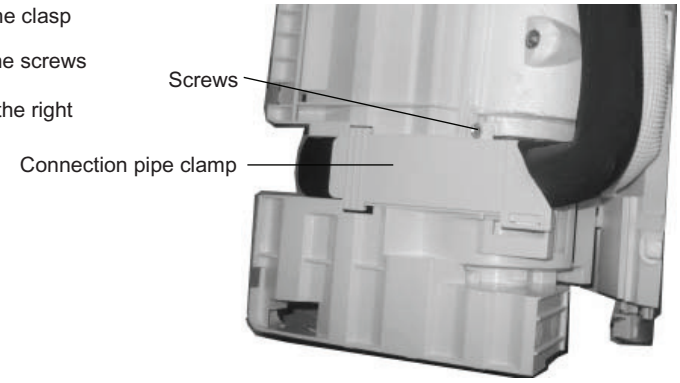
5.Disassemble electric box

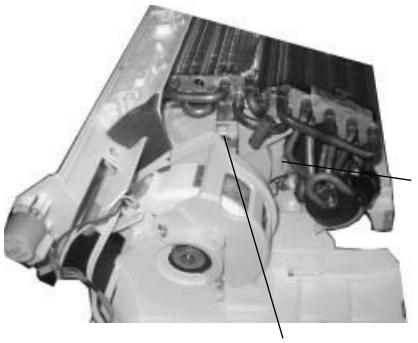
Screw off the screws fix the electrix box, screw off the earh screw, pull out the tube sensor, pull out the air guide motor, the wiring terminal of motor, screw off the screws fixing the displayer, can take down the electric box.

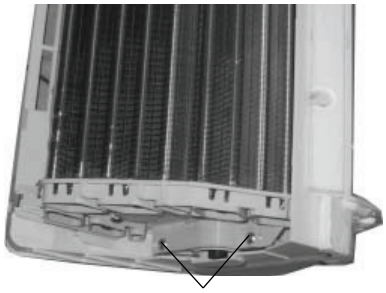


6.Disassemble the evaporator

Screw off the screws fixing the connection pipe clamp, loosen the clasp from left side, take down the connection pipe clamp; Unscrew the screws at both sides of evaporator, slightly move right toward, to make the right side clasp loosen, then can take down the evaporator.

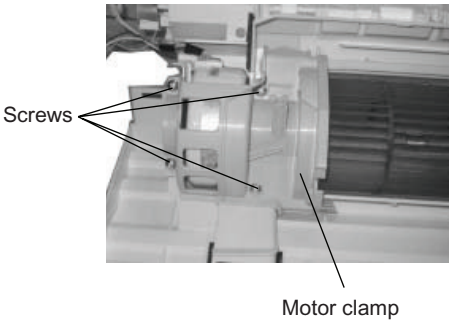


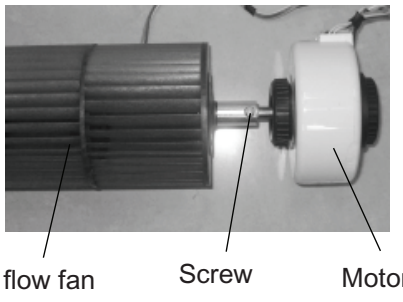




7.Disassemble the motor

Unscrew the screws which fix the motor clamp, take down the motor and cross flow fan, screw off one screw which connects with the motor and cross flow fan, then take out the motor.

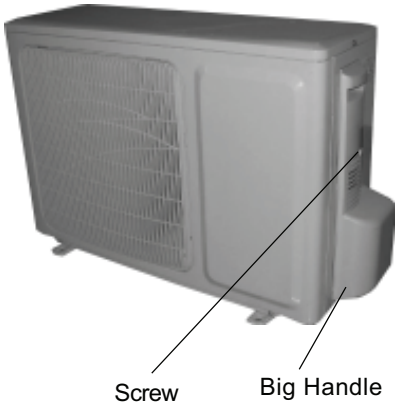




outdoor Unit

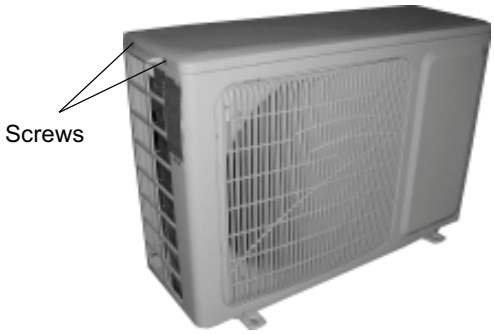
1. Disassemble Big Handle

Unscrew the screw fixing the big handle,and then remove it downwards to take it out.



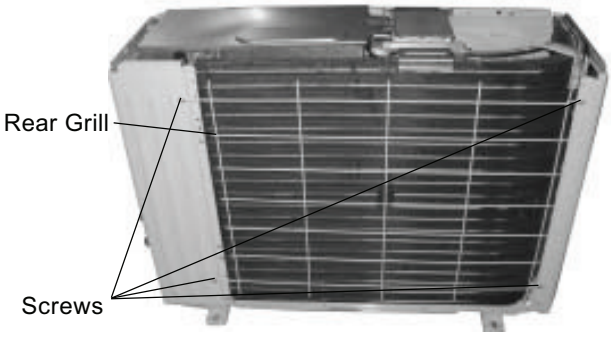
2. Disassemble Top Cover

Unscrew the 2 screws fixing left side of top cover and the 1 screw fixing the right side to remove the top cover.



3. Disassemble Rear Grill

Unscrew the 4 screws fixing the rear grill to remove it.

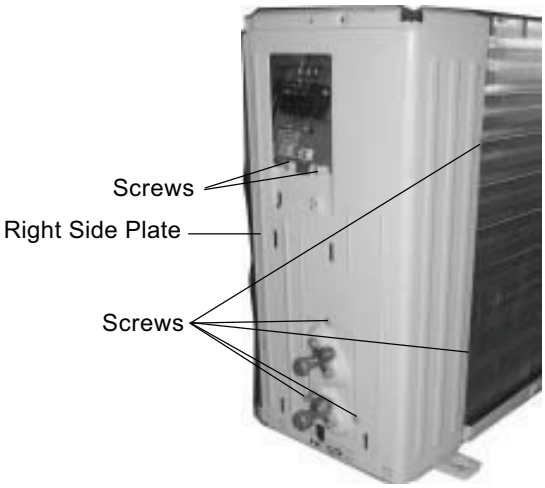


4. Disassemble Front Panel

Unscrew the 5 screws fixing the panel and dextrorotate the front panel to pull it out from groove.

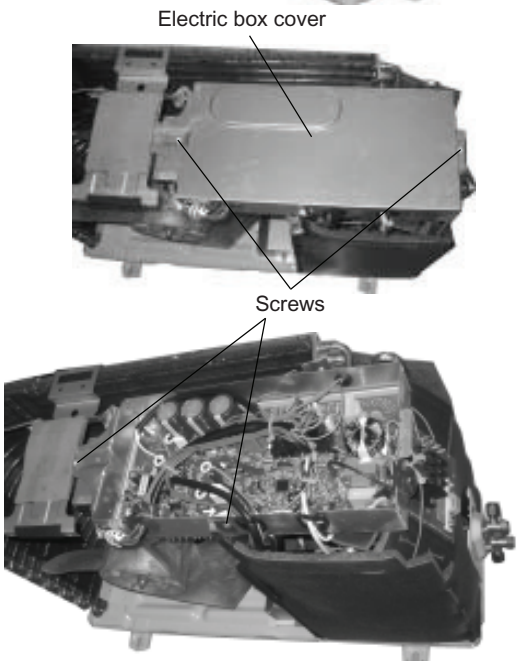
5. Disassemble Right Side Plate

Unscrew the 2 screws fixing electric box ,and then unscrew the 5 screws fixing the right side plate to remove it.



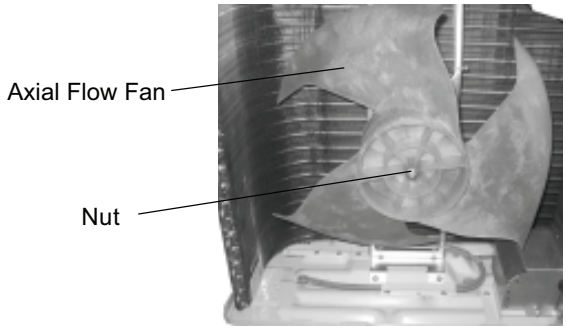
6. Disassemble Electric Box

Firstly unscrew off two pcs screw on the lelectric box cover, take down the connection wire of motor, compressor, sensor, electric heating belt, screw off the earth screw at side wire terminal and two pcs screw which fixes the electric box, then can take down the electric box.



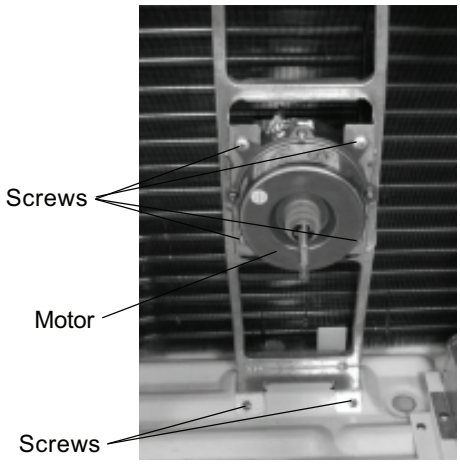
7. Disassemble Axial Flow Fan

Loosen the fastening nut fixing the axial flow fan with a spanner, and then take out the nut, spring gasket and flap gasket in turn.



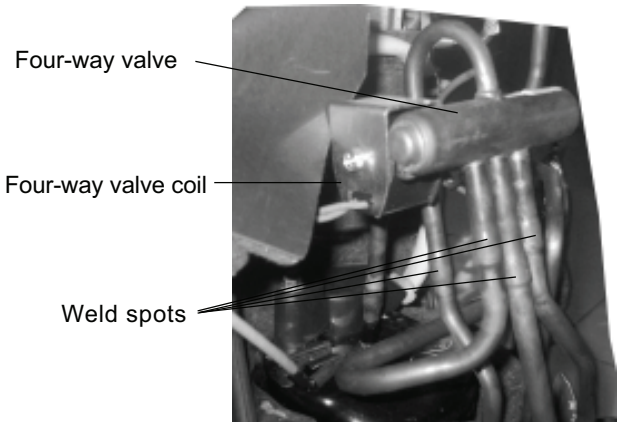
8. Disassemble Motor and Motor Support

Unscrew the 4 screws fixing the motor to take out the motor,and then unscrew the 2 screws fixing the motor support to take it out.



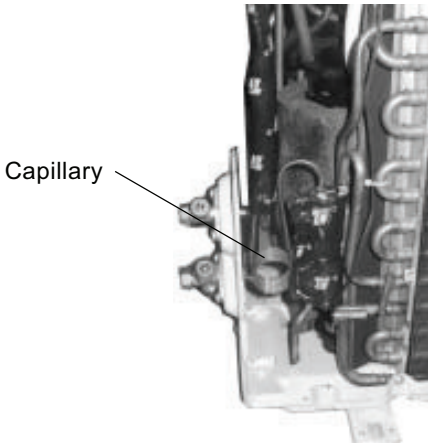
9. Disassemble Four-way Valve

Unscrew the fastening nut of the four-way valve coil and remove the coil. Wrap the four-way valve with wet cotton and unsolder the 4 weld spots connecting the four-way valve to take it out. (Note: Refrigerant should be discharged firstly.) Welding process should be as quick as possible and keep wrapping cotton wet all the time. Be sure not to burn out the lead-out wire of compressor.



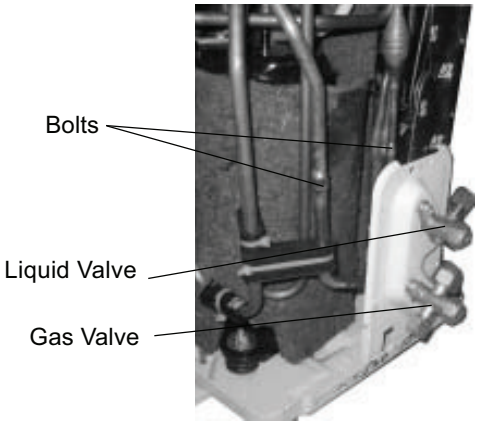
10. Disassemble Capillary

Respectively unsolder the weld spots of main capillary and auxiliary capillary to take off the capillary.



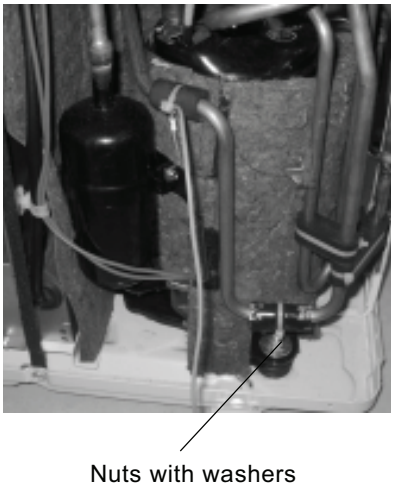
11. Disassemble Gas and Liquid Valves

Screw off the screws which fix the valves, unsolder the pipeline take down the valves.



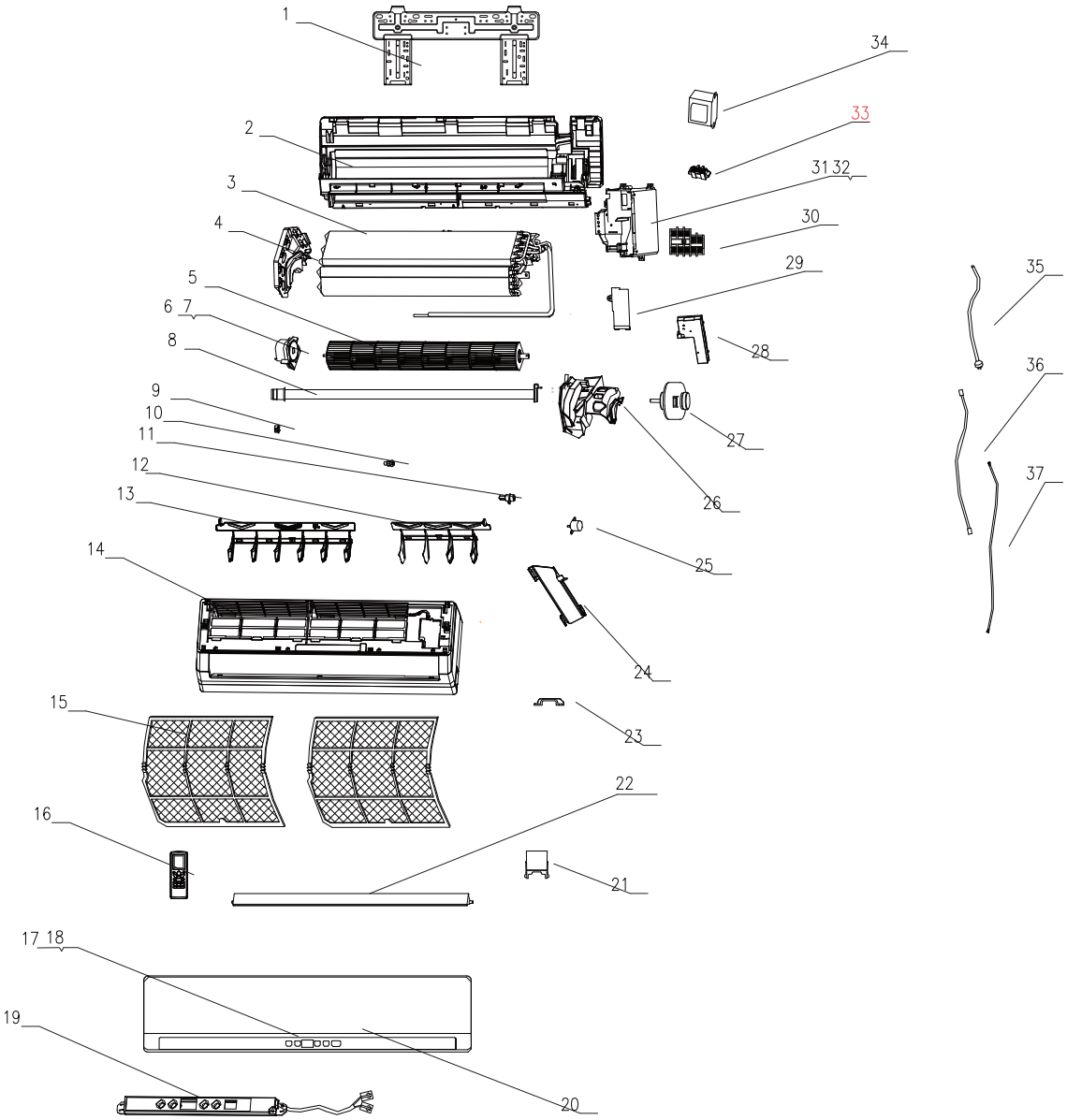
12. Disassemble Compressor

Loosen 3 pcs nut from the bottom of compressor, unsolder the air intake and air exhaust pipeline, becareful to move the pipeline, and take out the compressor.

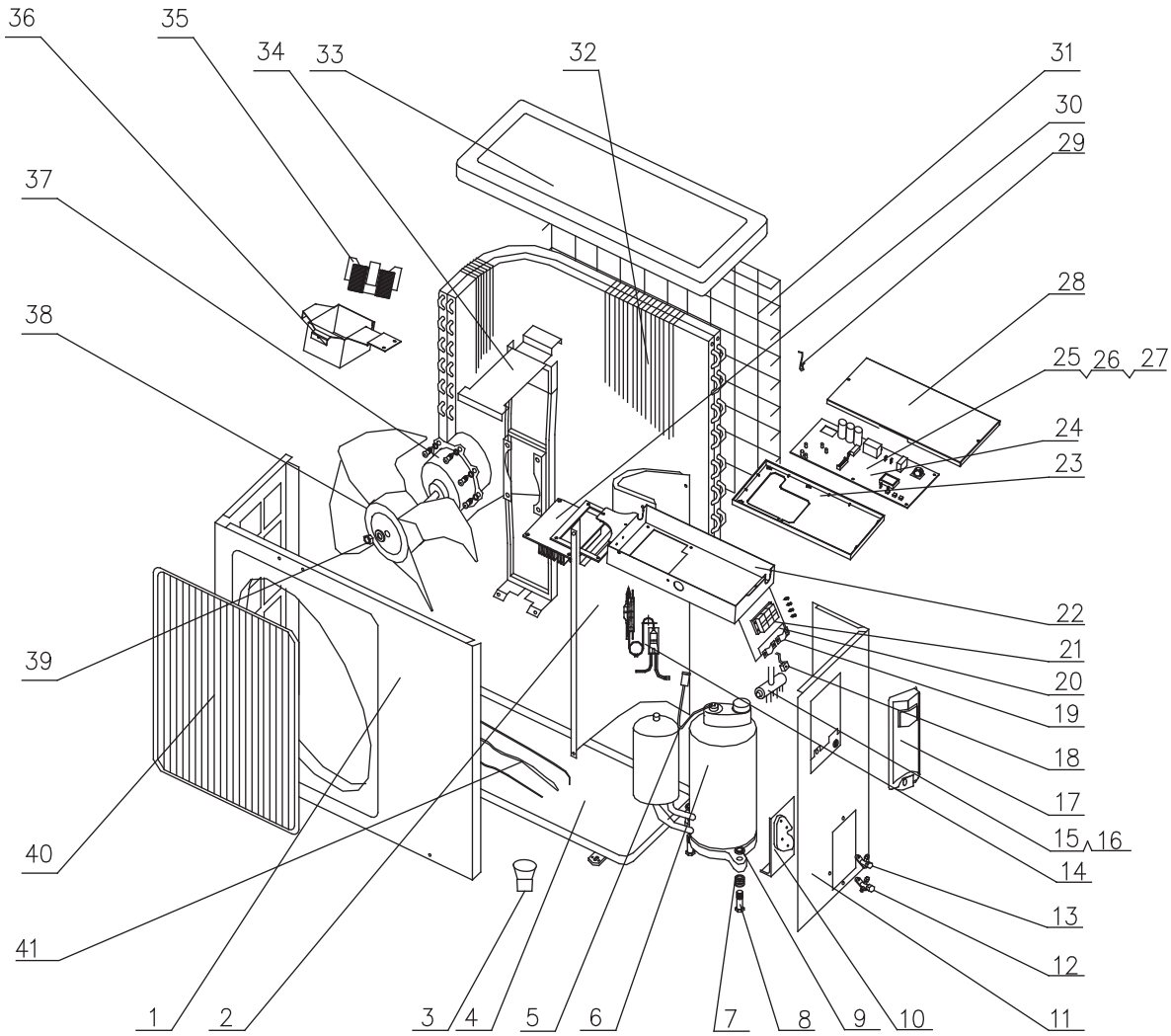


Exploded View

Indoor Unit



Outdoor Unit



Replacement Parts List

Parts List (Indoor)

No	Description	Part Code		Qty
		EVKC 09 DS	EVKC 12 DS	
1	Wall-Mounting Frame	01252015	01252013	1
2	Rear Case	22202453	22202454	1
3	Evaporator Assy	0100255203	0100255302	1
4	Evaporator Support	24212090	24212091	1
5	Cross Flow Fan	10352018	10352017	1
6	Bearing cushion rubber base	26152022	26152022	1
7	Ring of Bearing	76512203	76512203	1
8	Volute tongue	26112162	26112163	1
9	Left Axile Bush	/	10512037	1
10	Crank	10582070	10582070	1
11	Axile Bush	10542008	10542008	1
12	Swing Louver1	10512113	10512156	1
13	Swing Louver2	10512114	10512155	1
14	Front Case	20012120	20012123	1
15	Filter	11122081	1112220401	2
16	Remote Control YB1FA	30510041	30510041	1
17	Decorate Piece	2019223801	2019223601	1
18	Double-side glue	/	55112004	1
19	Receiver Board D5183B	30565012	30565012	1
20	Front Panel	20012151S	20012153	1
21	Screw Cover	24252016	24252016	1
22	Guide Louver	10512111	10512157	1
23	Wire Clamp	71010103	71010003	1
24	Rear Clamp	26112164	26112164	1
25	Motor MP24AA	1521210801	1521210801	1
26	Motor Clamp	26112160	26112161	1
27	Motor FN20J-PG	15012078	150120874	1
28	Electric Box Cover 1	20102848	20102848	1
29	Covering Plate2	20122075	20122075	1
30	Terminal Board T4B3A	42011233	42011233	1
31	Electric Box	20112064	20112064	1
32	Main PCB M809F2J(MI)	30138026	30138026	1
33	Jumping Connector	4202300106	4202300105	1
34	Transformer 41X26.5G	43110236	43110236	1
35	Power Cable	400204643	400204643	1
36	Connecting Cable	400205236	4002052312	1

NOTE) *Please ensure GCSC since these parts may be changed depending upon the buyer's request.

No	Description	Part Code		Qty
		EVJC 09 DS	EVJC 12 DS	
1	Front Panel	01533005	01533006	1
2	Clap Board	01233012	01233381	1
3	Drainage Connecter	06123401	6123401	1
4	Reactor Support	01203682P	0120368201P	1
5	Temperature Sensor 222KT-XH-2P(white)-4	39000302	39000302	1
6	Compressor KNB092FHBMC	00120228	00120228	1
7	/	/	/	/
8	Compressor Bolt	70210108	70210108	3
9	Nut M6Xφ25X6.5	70310011	70310013	3
10	Valve Support	01713041	01713041	1
11	Right Side Plate	0130200401	0130200401	1
12	Valve 3/8“	07100005	07100006	1
13	Valve 1/4“	07100003	07100004	1
14	Capillary Assy	0310333305	0310307210	1
15	4-Way Valve	430004022	430004032	1
16	4-way Rever-sing Valve Component	03123042	03123126	1
17	Big Handle	26233433	26233433	1
18	4-way Valve Coil	430004002	430004002	1
19	Wire Clap	71010003	71010003	1
20	Insulation Piece D	70410525	70410525	1
21	Terminal Board A	42011113	42011113	1
22	Electric Box Assy	01403998	01403998	1
23	Electric Box	20113005	20113005	1
24	PCB W8073B	301380021	30138013	1
25	Temperature Sensor	39000208	39000208	1
26	Sensor 20K	390001921	390001921	1
27	Exhaust Gas Temperature Sensor 50K	39000016	39000016	1
28	Electric Box Cover	01413048	01413048	1
29	Sensor Insert	42020063	42020063	1
30	Radiator	49010065	49010065	1
31	Rear Grill	01473023	01473023	1
32	Condenser Assy	0110359012	0111308203	1
33	Top Cover Assy	01253261	01253261	1
34	Motor Support	01705002	01705002	1
35	Reactor L15mH/10A	43130178	43130178	1
36	Reactor Box	01403617	01413504	1
37	Motor FW25K	150130671	15013067	1
38	Axial Flow Fan	10333414	10333413	1
39	Nut	70310131	70310131	1
40	Front Grill	22413431	22413431	1
41	Heating cable	76513004	76513004	1

NOTE) *Please ensure GCSC since these parts may be changed depending upon the buyer's request.

Appendix

Method of testing the system at a fixed frequency operation.

Model		9K	12K	9K	12K	9K	12K
Mode	Cooling	P0		P1		P2	
Rotate speed		25	25	50	68	80	95
Setting temp.		16		18		19	
Mode	Heating	P0		P1		P2	
Rotate speed		25	25	53	74	80	95
Setting temp.		27		29		30	

After set up the turbo and indoor setting temperature, within 2.5s continuously press “Sleep” button four times, the displayer will display P0 or the corresponding codes, that will enter into relevant testing status, the compressor will run according to the relevant frequency.

P0: Min. status; P1: Rated status; P2:Max. status